CITY MULTI®
VRF | TECHNOLOGY

MITSUBISHI ELECTRIC
Cooling and Heating Solutions

# Variable Refrigerant Flow

## Zoning Systems: 3-30 Tons

MITSUBISHI ELECTRIC

Cooling and Heating Solutions

CITY MULTI®

VRF TECHNOLOGY

Mitsubishi Electric is a world leader in all types of *quality* products. Our consumer products, like high-definition televisions and home theater systems, have won awards for innovation and *quality*.

Semi-conductors, opto-electronics devices, communication products, power generation systems, and, of course, heating and air-conditioning systems are all a part of the global Mitsubishi Electric family.

*Quality* describes the products engineered and manufactured by Mitsubishi Electric. *Quality* is what comes to mind when we think of Mitsubishi televisions, elevators, and air-handling systems – *quality* because the majority of components found in Mitsubishi Electric products are made by Mitsubishi Electric factories. *Quality* comes from a company that controls its own research, development, design, materials and manufacturing. From beginning to end, it is all Mitsubishi Electric engineering. It is all about *quality*.

The technological advances developed by Mitsubishi Electric are apparent as innovative features throughout all of Mitsubishi Electric's products. Efficient and technologically advanced motors, controls, INVERTER-driven compressors and micro-processors are all developed by Mitsubishi Electric and used in CITY MULTI® Variable Refrigerant Flow Zoning (VRF) systems. Cross-functional engineering allows Mitsubishi Electric to provide innovative new products in the United States that have proven track records worldwide.

# Good for the environment and your bottom line.

Mitsubishi Electric Cooling and Heating Solutions promotes environmental awareness not only by putting innovative technology to work for you, but also in the products themselves of the design and manufacture for example:

- **Eco-friendly refrigerant:** Environmentally-friendly R410A refrigerant offers zero Ozone Depletion Potential (ODP) and allows for higher heat transfer coefficient (COP). This innovative feature means a reduction in equipment size, a reduction in piping size and higher pressure for greater performance. Smaller equipment also means less impact on the environment at the end of the product's life cycle.
- **Standard compliance:** All Mitsubishi Electric products follow standards and guidelines as set forth by the **ENERGY STAR®**, EPA, AHRI, ASHRAE, UL, ETL and ISO.
- **Recycling design:** Our air conditioners are specially designed to allow for easy cleaning, efficient disassembly and more practical recycling. The number of parts used in indoor units has been reduced by adopting modular components, a process which also simplifies materials separation for recycling.
- **Minimal impact on landfills:** All air-conditioning products use long-life washable filters rather than disposable filters. To date, as much as 89.8 percent of the materials used to build a standard CITY MULTI system component are recyclable.
- **Smart energy usage:** Mitsubishi Electric INVERTER zoning systems smartly deliver only the amount of capacity needed– unlike a typical full-power ON system. Individual indoor air handlers are installed each zone. These air handlers measure the load for each zone and deliver only the capacity needed directly there, reducing energy costs from long duct runs. Smarter sensing technology and microprocessors enhance the system's ability to accurately measure room temperature for added comfort, performance and efficiency.

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# CITY MULTI® VRF

(Variable Refrigerant Flow)

## Zoning Systems: user-friendly ductless, or ducted commercial or residential comfort control systems.

CITY MULTI® VRF TECHNOLOGY

## Quality and reliability from a name you know: Mitsubishi Electric

CITY MULTI is the first two-pipe, simultaneous cooling and heating system available in the United States and around the world. Our technology has a long and proven track record of quality and reliability. Mitsubishi Electric, an acknowledged global industry leader, has installed CITY MULTI zoning systems in buildings throughout Asia, Europe, and other countries for nearly 30 years with great success and customer satisfaction. Let a Mitsubishi Electric representative show you how you can put the ultimate cooling and heating system to work for you and your customers right here, right now. Contact us at 800-433-4822 (option #4).

## CITY MULTI advantage

The best way to ensure total comfort for the occupants of offices, schools, hospitals, assisted-living facilities, hotels and other is to provide each individual zone with a personalized comfort system. Zoning offers maximum individual comfort and energy savings because each zone receives conditioning only when it needs it. Each zone of the CITY MULTI system has its own indoor unit or group of indoor units that precisely control the indoor temperature, while operating with minimal energy usage. You set the comfort level, then relax.

The CITY MULTI VRF (Variable Refrigerant Flow Zoning) system takes advantage of INVERTER technology by varying the speed of the compressor in the outdoor unit to meet the changing load requirements in each of the indoor zones.

## Complete zoning system

A CITY MULTI VRF system consists of an outdoor unit, a branch circuit (BC) Controller (depending on series), multiple indoor units, and corresponding system and zone controllers. Installing this fully integrated zoning system is fairly simple. A single outdoor modular unit or combined modular units, the BC Controller, and each of the indoor units are connected by a two-pipe refrigerant system. The outdoor unit and the BC Controller, depending on the series, work in unison to deliver the required refrigerant flow to each indoor unit. The Direct Digital Controls (DDC) system controls the network link between the indoor units with the BC Controller and the outdoor unit to provide convenient control of the entire system. Separate remote controllers connected to individual indoor units – or groups of indoor units – provide individual zone control. These controllers provide a wide variety of configuration settings to satisfy each zone's requirements, including temperature control and timer settings.

## Design flexibility

CITY MULTI VRF systems provide the flexibility to meet any application, ranging from the simple to the complex. CITY MULTI R2, Y, and W-Series systems, available in 208/230V and 460V capabilities, can be designed for up to 50 zones per system. The 208/230 V single phase S-Series system can be configured for up to eight zones. Systems with Mitsubishi Electric Hyper-Heating INVERTER (H2i™) have the capability to connect with up to 24 indoor units. With 11 different indoor unit styles, providing both ducted and ductless offerings, the CITY MULTI VRF system is ideal for any type of application.

Multiple CITY MULTI systems can be integrated into our controls network to manage up to 2,000 zones from a single networked PC using Mitsubishi Electric furnished software.

## Advanced comfort control

The CITY MULTI Controls Network (CMCN) uses Mitsubishi Electric's advanced M-NET technology to provide individual, personalized comfort and powerful, centralized control. Each component is integrated onto the secure high-speed communication bus to provide precise temperature control by varying the output of the outdoor unit(s) to match the needs of each zone.

## Easy to install, easier to operate

CITY MULTI is a simple, two-pipe system with easy, non-polar, two-wire control connections. Because of the modular outdoor unit's compact design, transportation can be transported through a standard, six-person elevator during the building process. This translates into less labor and materials, quicker, easier installation, and a much lower overall operating cost for the building owner.

## Complete product family

Mitsubishi Electric HVAC has a complete family of equipment to meet the needs of nearly every heating and cooling application CITY MULTI VRF is often specified as the primary system in commercial applications, but opportunities exist for complementary products to provide a complete solution. The Mr. Slim product line from Mitsubishi Electric offers a wide range of options for the designer.

The Mr. Slim M-Series line is a single phase product with offerings from 6,000 to 48,000 Btu/h, using from one to eight indoor units. With an extensive offering of ENERGY STAR approved models, the M-Series offers a high efficiency solution for a multitude of applications.

If the job requires a heavy duty and reliable piece of equipment that will work in a low ambient application or an industrial installation, the Mr. Slim P-Series is the best choice. No other manufacturer has a product that can compete with the reliability and high quality designed into the P-Series equipment. Available from 12,000 to 42,000 Btu/h in mostly single zone applications, including the revolutionary Hyper Heat configuration, the P-Series is designed to perform.

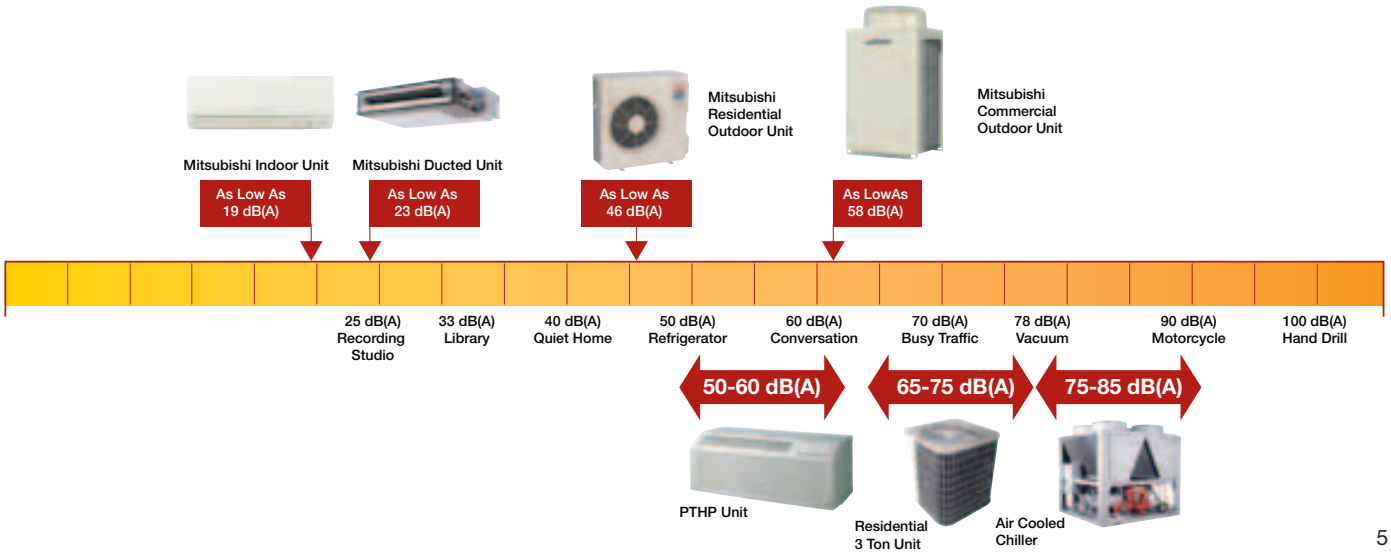
To receive additional information on the entire Mr. Slim product line, please contact your local Mitsubishi Electric representative or visit our website at www.mitsubishipro.com.

## Sustainable

The CITY MULTI technology is designed to allow building owners and designers as many opportunities as possible to attain Leadership in Energy and Environmental Design (LEED®) points when designing and applying CITY MULTI. Mitsubishi Electric is a corporate member of U.S. Green Building Council (USGBC) and is committed to sustainable products and design. CITY MULTI VRF technology may contribute to a building receiving LEED points in areas of Energy and Atmosphere and Indoor Air Quality.

## So quiet, you'll hardly notice it's there

CITY MULTI is designed to provide the quietest possible operation for both indoor and outdoor environments. Indoor units operate as low as 24 dB(A), and outdoor units operate as low as 58 dB(A). That's a major benefit, especially for hospitals, other health care facilities, schools, and libraries. CITY MULTI dependably provides comfortable cooling and heating all year long.



# OUTDOOR UNITS

Mitsubishi Electric HVAC has an extensive outdoor unit line-up that can be tailored to any building design need. Choose from modular units that have capacities up to 30 tons for Y-Series heat pump systems or 20 tons for R2-Series heat recovery systems, the Hyper-Heating INVERTER (H2i™) Y-Series units that provides up to 100% heating capacity at -4° F outdoor temperature, single-phase S-Series heat pump, or W-Series water-source units available up to 30 tons.

## R2-SERIES (Heat Recovery)

The R2-Series **simultaneously cools and heats** different zones within a building to provide energy-saving, heat-recovery operation through the use of the **BC Controller**. This means less work is required of the outdoor unit, which translates into energy savings and increased, overall capacity. The R2-Series can support up to 50 indoor units. The modular unit design features low operating sound, easy piping and maintenance design. Lightweight materials, and **R2-Series units are available in both 208/230V and 460V for various applications.**

## Y-SERIES (Heat Pump)

Y-Series outdoor units are flexible enough to cool or heat up to 50 individual zones, maximizing building design options. The modular unit design features a small footprint, low operating sound, lightweight materials, and easy piping and maintenance design. **Y-Series units are available in both 208/230V and 460V for various applications.**

## Hyper-Heating INVERTER (H2i™) Y-Series (Heat Pump)

Hyper-Heating INVERTER Y-Series units combine the ultimate in application flexibility with powerful cooling and heating capabilities to deliver precise comfort control to multiple zones in a building. **Providing up to 100% heating capacity at -4° F outdoor temperature and 84% capacity at -13° F outdoor temperature, the H2i unit is the perfect choice for year-round comfort – even in the coldest of climates.**

## S-SERIES

(Powerful Single Phase Heat Pump)

The CITY MULTI S-Series is a **single-phase** system perfect for light commercial or large residential applications. Available in 36,000 or 48,000 Btu/h, the S-Series can provide cooling or heating for up to eight individual zones.

# WATER-SOURCE UNITS

## W-Series WR2, WY (Heat Recovery And Heat Pump Systems)

W-Series units combine the convenience of **water-source systems with VRF technology**. These units are easily installed indoors, and can be used on a range of closed water loop applications, including geothermal. The W-Series includes WR2 heat recovery units for simultaneous cooling and heating, and powerful heat pump WY models.

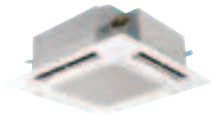
**New modular design up to 30 tons maximum capacity. Available in 208/230 460V capacity.**

# INDOOR UNITS

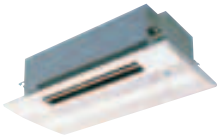
Mitsubishi Electric's wide selection of different indoor unit styles allows you to choose the styles and size that meets your requirements for layout and design.



PKFY
Wall-mounted



PLFY-NBMU (33"x33") & PLFY-NCMU (22"x22") (4-Way)
Ceiling-recessed Cassette



PMFY (1-way)
Ceiling-recessed Cassette

PCFY
Ceiling-suspended

PVFY
Vertical Concealed

## Hydronic Heat Exchanger

PWFY-P36/72NMU-E-AU
PWFY-P36NMU-E-BU
Booster Unit

PEFY-NMSU/ PEFY-NMAU/ PEFY-NMHU
Ceiling-concealed Ducted Low Profile
Ceiling-concealed Ducted Medium Static
Ceiling-concealed Ducted Alternate High Static

PFFY-NEMU
Floor-standing Exposed

PFFY-NRMU
Floor-standing Concealed

# CONTROLS NETWORK

AG-150
Touch Screen
Centralized Controller

GB50ADA Centralized
Controller for PC

meZO iPhone App

TC-24
Touch Screen
Centralized Controller

PAR-21MAA
PAR-F27MEA
Remote Controllers

PAC-YT51CRB
Simple Remote

Wireless Remote

DIDO / AI
Control Boards

## CITY MULTI Controls Network (CMCN)

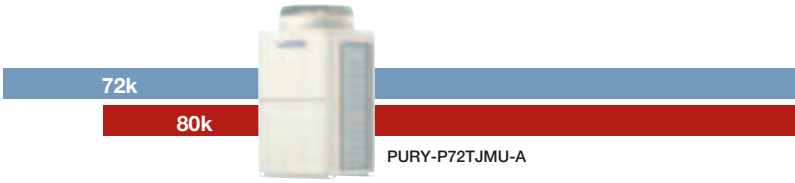
Mitsubishi Electric's M-NET communication bus allows CMCN to deliver precise temperature control to each individual zone. The M-NET allows for a simple installation and configuration of CMCN components. The flexibility of CMCN allows building owners to customize the levels of control from remote controllers for the occupant in the space, from PC browsers for building engineers, and via BACnet® and LonWorks® interfaces for the BMS.

## R2-Series Heat Recovery NEW

**PURY-P-T/Y(S)JMU-A**

up to 50 indoor units

**208/230V**
**460V**

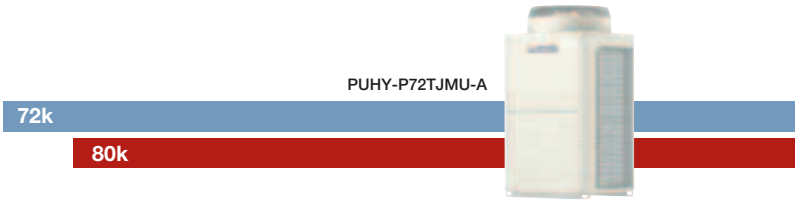



## Y-Series Heat Pump

**PUHY-P-T/Y(S)JMU-A**

up to 50 indoor units

**208/230V**
**460V**




## Y-Series H2i® Heat Pump NEW

**PUHY-HP-T/Y(S)JMU-A**

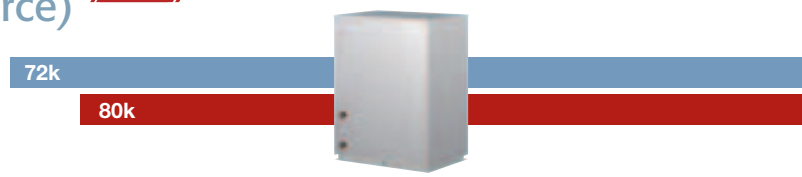
**208/230V**

| TONS | 3.5 | 4 | 4.5 | 5 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|
| Btu/h | 42k | 48k | 54k | 60k | 96k | 120k | 144k |

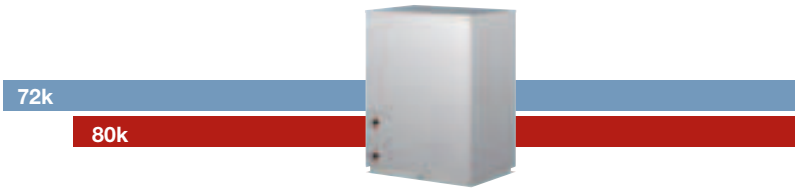
## WR2-Series Heat Recovery (Water-source) NEW

**PQRY / PQHY**

**208/230V**
**460V**

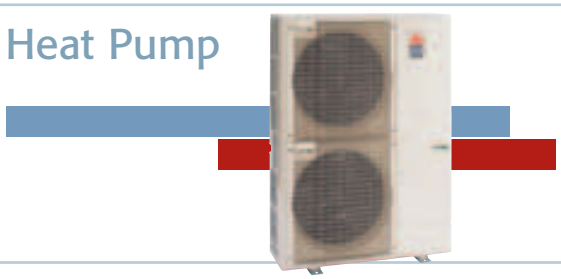


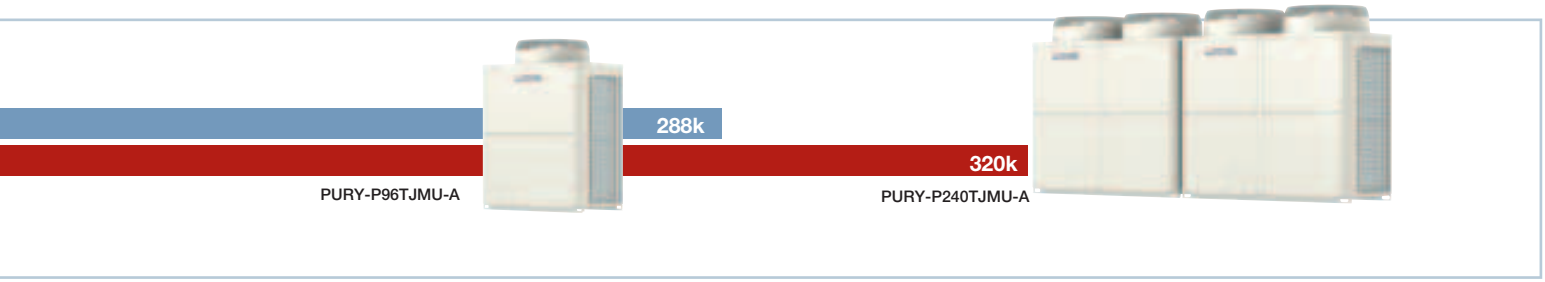

**208/230V**
**460V**

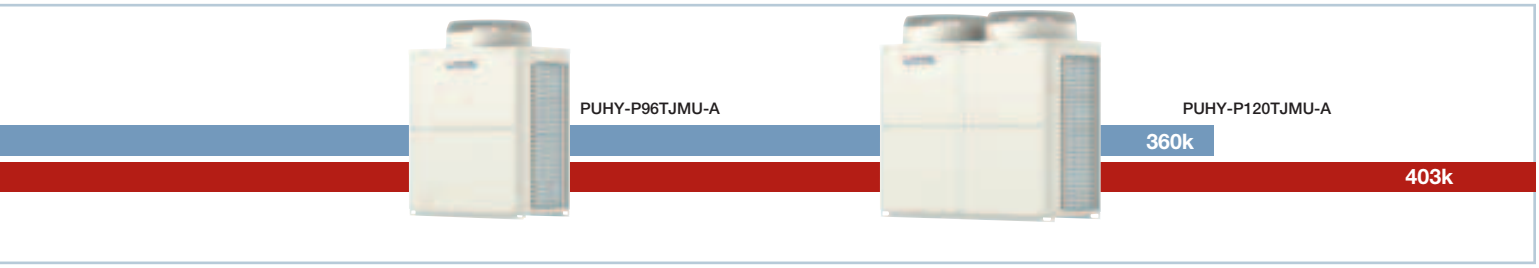


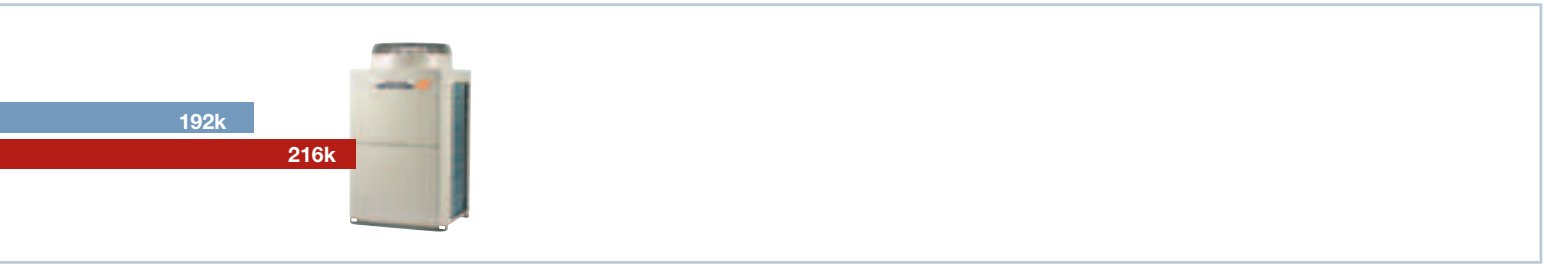

## S-Series Heat Pump

**PUMY**

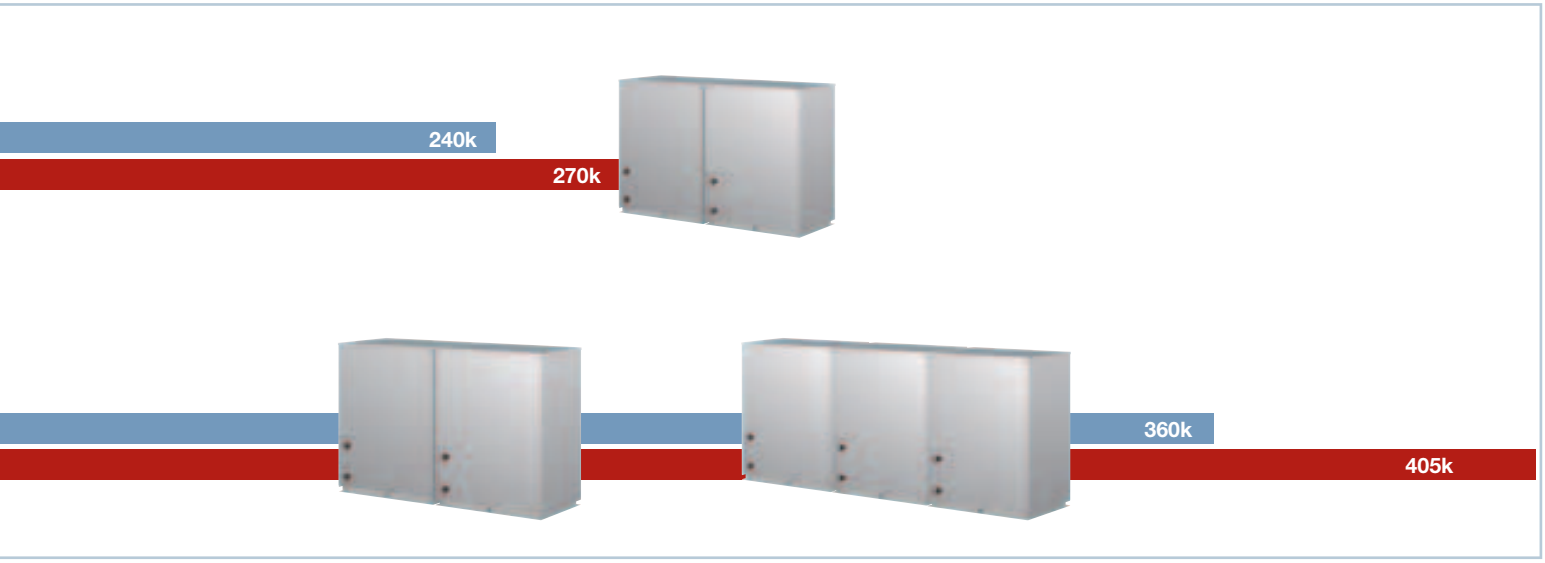





| 16 | 20 | 24 | 26 | 30 | TONS |
|---|---|---|---|---|---|
| 192k | 240k | 288k | 312k | 360k | Btu/h |




Cooling

Heating

# HIGH PERFORMANCE, MODULAR CITY MULTI® VRF SYSTEMS

## R2-Series / Y-Series / H2i™ Y-Series

CITY MULTI modular outdoor units feature a new modular, design with a smaller installation footprint, low operating sound, easy piping and maintenance, longer line lengths, and light weight. The modular unit design offers greater flexibility in increasing capacity (up to 20 tons with the R2-Series and 30 tons with the Y-Series) while increasing the number of connectable indoor units, to 50. The modular units are available in both 208/230V and 460V for various sizes of building application requirements.

## Blue Fin treatment

The standard anti-corrosion Blue Fin treatment of the heat exchanger is especially effective in environments where traffic pollution can damage the aluminum fins, reducing the capacity and life expectancy of the unit. All CITY MULTI R410A outdoor units are treated with Blue Fin prior to leaving the factory.

Additional seacoast protection of the frame and other component materials on all outdoors is available as an option, as indicated on the model suffix number with a '-BS'.

## CITY MULTI Revit® Objects

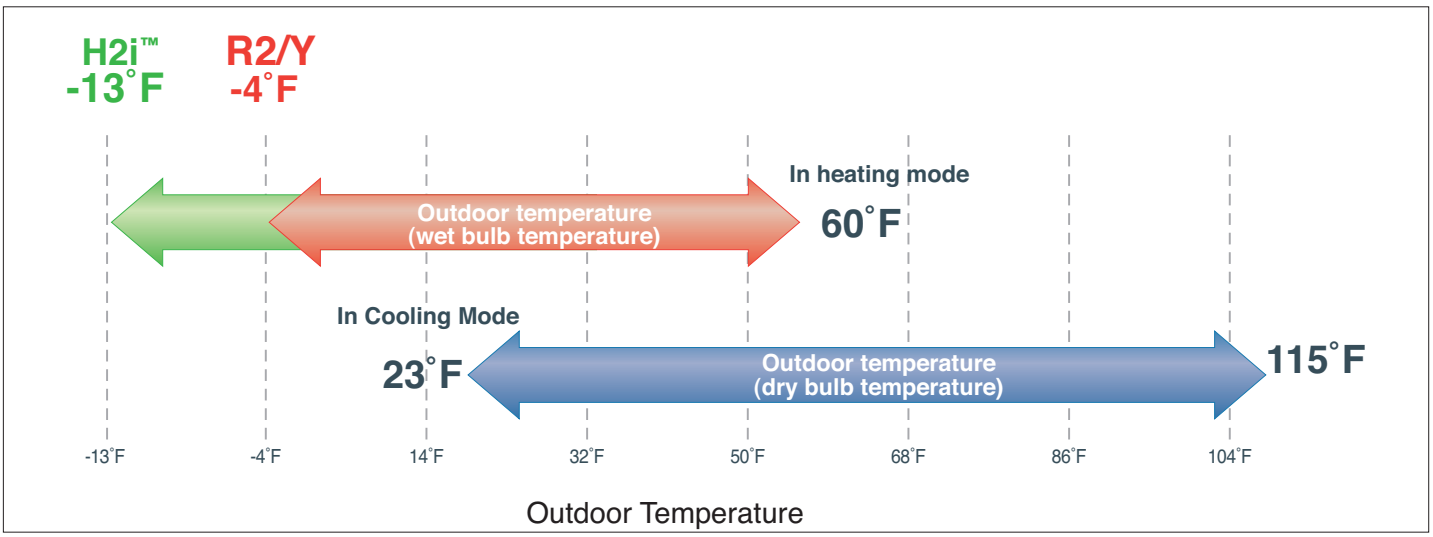
Autodesk® Revit® building information modeling (BIM) software is helping engineers, architects, and construction professionals explore early design concepts and forms and more accurately maintain a vision through design, documentation, and construction. In mid-2009, Revit "objects" for Mitsubishi CITY MULTI systems were made available on Autodesk® Seek, The SmartBIM Library from Reed Construction Data and on Mitsubishi's Website. The complete outdoor unit and indoor unit lineup are available for download. As use of Revit and the Mitsubishi product offering continues to grow, look for upcoming announcements regarding additional Revit objects.

## Larger projects, more options

The modular outdoor unit design offers the option for either a 208/230V, 3-Phase power source or a 60Hz or a 460V, 3-Phase, 60Hz power source. Another feature is the larger capacities for the larger projects–up to 30 tons on select systems–and up to 50 an increased number of connectable indoor units with increased line lengths. These capabilities increase the range of applications for which an architect, engineer or building owner can specify.

## Wide temperature operating range

CITY MULTI VRF systems are designed to operate in a wide range of ambient conditions. Units can operate in the Cooling mode up to 115˚ F dry bulb and down to 23˚ F DB. Extended temperature range now down to -10˚ F with the new low ambient kit (see page 10). But it is not only cooling where CITY MULTI excels. The technology designed into the VRF heat pump system using Mitsubishi Inverter driven compressors allows high capacity operation, enough to actually provide usable heat down to -4˚ F WB on standard models and -13˚ F WB on the industry leading–H2i Hyper Heat Models.



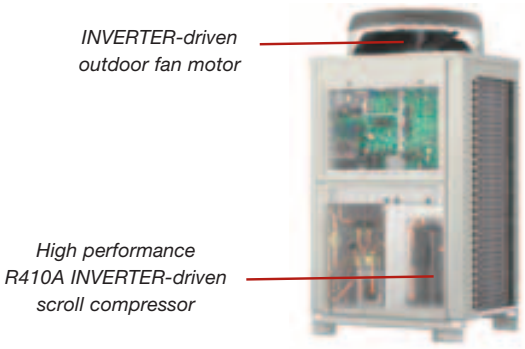
## 100% INVERTER-driven, like no other

The compressor varies its speed to match the indoor cooling or heating demand and, therefore only consumes the energy that is required.

When an INVERTER-driven system is operating at partial load, the energy efficiency of the system is significantly higher than that of a standard fixed–speed system.

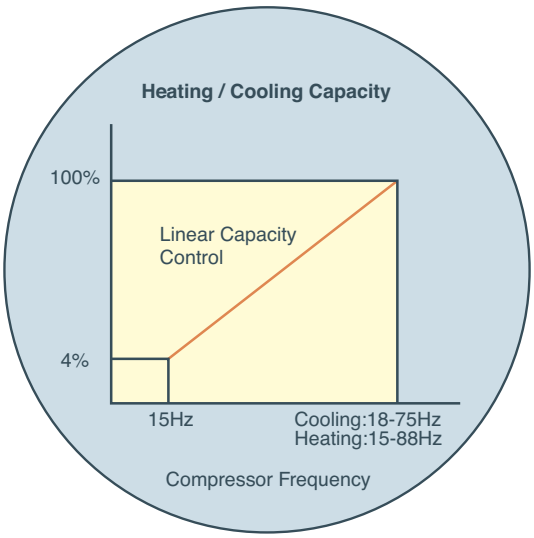
This is because fixed–speed systems can only operate at 100%, however, partial load conditions prevail for the majority of the time–so fixed–speed systems cannot match the annual efficiencies of INVERTER-driven systems.

Using only one INVERTER-driven compressor per outdoor unit module, CITY MULTI outdoor units provide low starting currents (only 15 amps for a TJMU-A outdoor unit), and smooth transition across the range of compressor frequencies. Minimum capacity control ranges from **four percent to 18 percent** depending on outdoor unit systems.




The outdoor unit combinations comprise one unit for P72-P144 models (R2 and Y-Series), two units for P168-P288 models systems (R2 and Y-Series), and three units for P264-P360 models (Y-Series only). Each outdoor unit model features one INVERTER-driven compressor, making simple and highly reliable control possible.

Not only does it allow low starting currents, the INVERTER-driven compressor also provides precise indoor comfort and adapts to the air-conditioning load as needed.




# Additional features

## Adjustable high static pressure, standard

R2-, Y- and H2i™ Y-Series feature adjustable static pressure up to 0.24" W.G., ideal and flexible for any type of application.

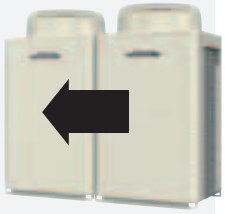
The static pressure setting is adjustable by changing a dip switch. The default setting is 0" W.G. with options 0.12 and 0.24" W.G.

## Long line length

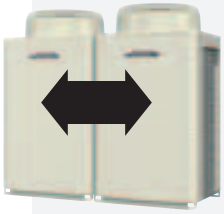
The modular chassis for both the R2- and Y-Series outdoor units allows for an increased line length to the connected indoor units, up to a total combined length of refrigerant piping up to 2,624 feet for R2-Series and up to 3,280 feet for Y-Series.

## Back-up and outdoor unit rotation

**Back-up Function**
(combined module systems)


Back-up Function

The combined modular outdoor unit design ensures an exceptionally high level of reliability by utilizing a back-up function, which can be easily operated in the unlikely case of a malfunction from an indoor unit remote controller.


Rotation Function

**Rotation Function**
(combined module systems)

Running outdoor units alternatively with the ‘Rotation Function’, the system is able to ensure an optimum product life cycle for both of its component units.

## System check

Ensuring simple and easy maintenance, system tests are available to check wiring, sensors and the refrigerant amount.

## Easy maintenance

Our systems allow an indoor unit to be serviced while other indoor units within the same piping system are still in operation. Note that this does not apply to all situations and proper procedures must be followed when servicing any equipment. Indoor units typically require filter changes and cleaning.

# LOW AMBIENT COOLING OPTION

**Mitsubishi Electric is the first and only VRF manufacturer to offer a low ambient cooling solution for its 6–30 ton air source outdoor units.**

***PATENT PENDING***

The low ambient cooling kit makes it possible to provide 100% cooling capacity at outdoor temperatures down to -10° F while still allowing full airflow at higher ambient temperatures and full heating capacity if the unit switches to that mode.

The kits are designed for use with the PUHY, PURY and PUHY-HP modular outdoor units. The hood, which includes an electronically controlled damper assembly, will modulate its position automatically and, combined with the INVERTER–driven fans, will provide optimum airflow at lower temperatures. The specially designed wind deflectors will block unwanted wind that could impede operation and, at the same time will allow full airflow when required at higher ambient temperatures or in heating mode. Another benefit of the assembly is a more efficient defrost cycle when the unit is operating in heating mode.

Complete Low Ambient Kit requires hood with control damper assembly and wind deflectors.

## Additional features

- Hood and wind deflectors constructed of 20 gauge Hot-dipped galvanized G-90 steel
- Heavy-duty polyester-based powder paint finish
- Designed to work with both 208/230 and 460 3-phase units
- NEMA 4X control box protects electrical components from the elements
- Kit easily connects to outdoor unit with plug–in electrical connections
- Wind deflectors easily install with existing (wire guard) fasteners

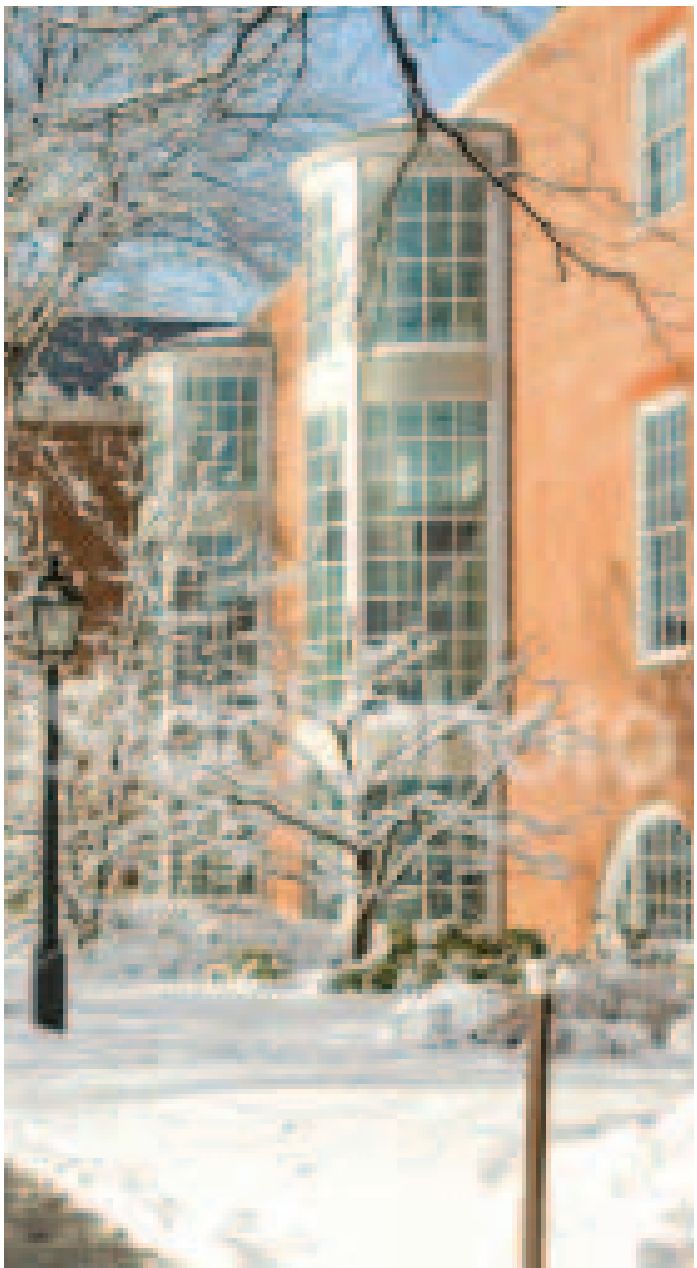
## General features

Allows system to operate at 100% COOLING capacity at reduced outdoor temperatures:

- PUHY Y-Series Outdoor Units – (Now down to -10o FDB Outdoor Temp.)
- PURY R2-Series Outdoor Units – (Now down to -10oFDB Outdoor Temp.)
- PUHY-HP H2i Y-Series Outdoor Units – (Now down to 0o FDB Outdoor Temp.)

## Components required per outdoor unit(s)

For outdoor units with multiple modules, a minimum 1-3/16" separation between the modules is recommended. If modules are placed farther apart, than 15" apart, more than one set of SWD-1 side wind deflectors may be needed. For multiple units or module sets placed in a row, only one side wind deflector kit (SWD-1) is needed to cover the two outside module coil surfaces.



# LOW AMBIENT SPECIFICATIONS

| Part # | Description | Electrical | Net Wt. |
|---|---|---|---|
| LAH-1 | Low Ambient Hood Assembly (master) with damper control box for single fan modules (S and L) | 208/230 1-phase .20 amp | 59 lbs. |
| LAH-1 | Low Ambient Hood Assembly (slave) combined with the LAH-1 for double fan (XL) modules | Controlled by LAH-1 | 51 lbs. |
| SWD-1 | Side Wind Deflector, includes 2 pieces (fits all modules) | N/A | 45 lbs. |
| RWD-1 | Rear Wind Deflector (1 fits S module, 2 fit the XL module) | N/A | 37 lbs. |
| RWD-2 | Rear Wind Deflector (1 fits L Module) | N/A | 40 lbs. |

## PURY-P-T/Y(S)JMU Series

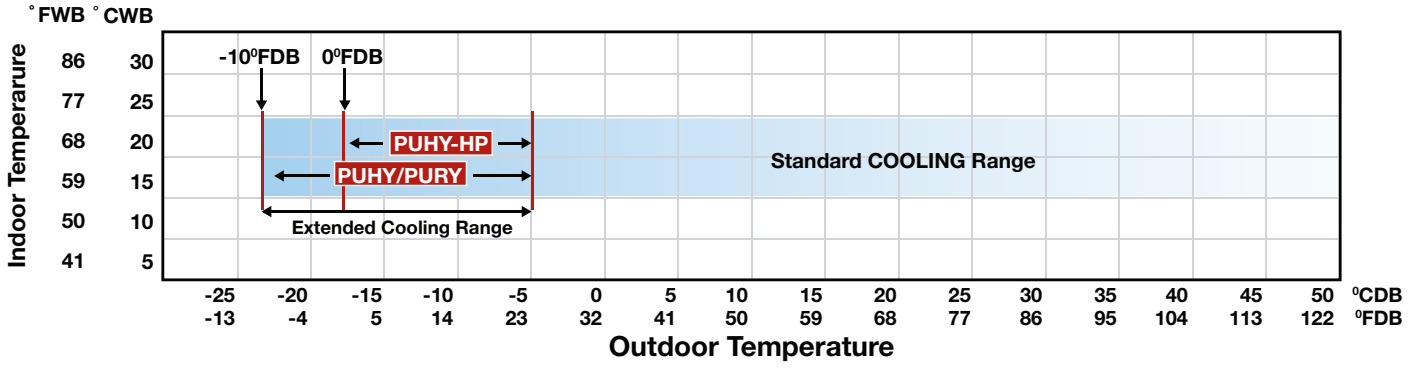
| Unit Model | Module Size | | | Component Quantity | | | | |
|---|---|---|---|---|---|---|---|---|
| | S | L | XL | LAH-1 | LAH-2 | SWD-1 | RWD-1 | RWD-2 |
| PURY-P72(T,Y)JMU-A | 1 | | | 1 | | 1 | 1 | |
| PURY-P96(T,Y)JMU-A | | 1 | | 1 | | 1 | | 1 |
| PURY-P120(T,Y)JMU-A | | | 1 | 1 | 1 | 1 | 2 | |
| PURY-P144(T,Y)JMU-A | | | 1 | 1 | 1 | 1 | 2 | |
| PURY-P168(T,Y)SJMU-A | 1 | 1 | | 2 | | 1 | 1 | 1 |
| PURY-P192(T,Y)SJMU-A | | 2 | | 2 | | 1 | | 2 |
| PURY-P216(T,Y)SJMU-A | | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| PURY-P240(T,Y)SJMU-A | | | 2 | 2 | 2 | 1 | 4 | |
| PURY-P264(T,Y)SJMU-A | | | 2 | 2 | 2 | 1 | 4 | |
| PURY-P288(T,Y)SJMU-A | | | 2 | 2 | 2 | 1 | 4 | |

## PUHY-P-T/Y(S)JMU Series

| Unit Model | Module Size | | | Component Quantity | | | | |
|---|---|---|---|---|---|---|---|---|
| | S | L | XL | LAH-1 | LAH-2 | SWD-1 | RWD-1 | RWD-2 |
| PUHY-P72(T,Y)JMU-A | 1 | | | 1 | | 1 | 1 | |
| PUHY-P96(T,Y)JMU-A | | 1 | | 1 | | 1 | | |
| PUHY-P120(T,Y)JMU-A | | | 1 | 1 | 1 | 1 | 2 | |
| PUHY-P144(T,Y)JMU-A | | | 1 | 1 | 1 | 1 | 2 | |
| PUHY-P168(T,Y)SJMU-A | 1 | 1 | | 2 | | 1 | 1 | 1 |
| PUHY-P192(T,Y)SJMU-A | 1 | | 1 | 2 | 1 | 1 | 3 | |
| PUHY-P216(T,Y)SJMU-A | | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| PUHY-P240(T,Y)SJMU-A | | | 2 | 2 | 2 | 1 | 4 | |
| PUHY-P264(T,Y)SJMU-A | | | 2 | 2 | 2 | 1 | 4 | |
| PUHY-P288(T,Y)SJMU-A | | | 2 | 2 | 2 | 1 | 4 | |
| PUHY-P312(T,Y)SJMU-A | 1 | | 2 | 3 | 2 | 1 | 5 | |
| PUHY-P336(T,Y)SJMU-A | | 1 | 2 | 3 | 2 | 1 | 4 | 1 |
| PUHY-P360(T,Y)SJMU-A | | 1 | 2 | 3 | 2 | 1 | 4 | 1 |

## PUHY-HP-T/Y(S)JMU Series

| Unit Model | Module Size | | | Component Quantity | | | | |
|---|---|---|---|---|---|---|---|---|
| | S | L | XL | LAH-1 | LAH-2 | SWD-1 | RWD-1 | RWD-2 |
| PUHY-HP72 TJMU-A | 1 | | | 1 | | 1 | 1 | |
| PUHY-HP96 TJMU-A | | 1 | | 1 | | 1 | | 1 |
| PUHY-HP144 TSMU-A | 2 | | | 2 | | 1 | 2 | |
| PUHY-HP192 TSMU-A | | 2 | | 2 | | 1 | | 2 |



**Mitsubishi Electric HVAC continues to drive acceptance of VRF technology in the U.S. engineering and regulatory arenas.**

## Leading the vrf industry

Mitsubishi Electric HVAC has been at the forefront of the charge to develop proper testing standards and procedures for VRF systems, providing clients the necessary information to properly incorporate these systems into their building designs.

## AHRI Standards

Air-conditioning, Heating and Refrigeration Institute (AHRI) Standards 210/240 and 340/360 had been used as the benchmark for establishing the testing methods of traditional unitary HVAC equipment. These standards have formalized the use of such terms as EER, IPLV, COP, SEER, and HSPF–terms which are recognized and applied throughout the HVAC industry today. The simple testing procedures detailed in these existing AHRI standards, however, were not adequate to appropriately measure efficiency levels within advanced VRF systems, and could not account for such technologies as inverter-driven compressors, simultaneous cooling and heating, and variable-capacity ductless and ducted indoor units.

## AHRI Standard 1230

Mitsubishi Electric worked with the Department of Energy (DOE) and AHRI to gain regulatory acceptance for VRF systems. Initially, Mitsubishi Electric requested DOE grant waivers from the existing testing standards for VRF systems. It was quickly recognized that waivers weren't a long-term solution, and Mitsubishi Electric immediately assisted in developing a proper testing standard for VRF systems–a standard that is now known as AHRI Standard 1230.

## Integrated Energy Efficiency Ratio

IEER is the new measure of partial-load cooling performance for unitary equipment and VRF systems. IEER greatly improves the industry methodology for part-load testing by collecting data for four different outdoor testing conditions based on load on the system. The formula(shown below) used for testing, more accurately demonstrates the value and capabilities of inverter-driven VRF systems at part-load operation.

| | | |
|---|---|---|
| Test Condition "A" | = | 100% Capacity @ 95˚ FDB |
| Test Condition "B" | = | 75% Capacity @ 81.5˚ FDB |
| Test Condition "C" | = | 50% Capacity @ 68˚ FDB |
| Test Condition "D" | = | 25% Capacity @ 65˚ FDB |

**IEER = 0.02A + 0.617B + 0.238C + 0.125D**

## ASHRAE Standard 90.1-2007

ASHRAE Standard 90.1 is synonymous with energy efficiency requirements in commercial buildings. Many city, state, and national codes reference the efficiency levels listed in this standard. With the development and approval of AHRI Standard 1230, Mitsubishi Electric and other VRF system manufacturers had a platform that supported the introduction of VRF efficiency standards as an addendum to Standard 90.1-2007, and incorporated these standards as a part of Standard 90.1-2010. The minimum VRF efficiency standards are shown in Table 1.

## Vrf partial load vs. Unitary

A section taken directly from the ASHRAE-90.1-2007 addendum for VRF equipment:

*"Cooling EER and heating COP efficiency levels are proposed for a full range of product cooling capacities at standard rating conditions listed in AHRI Standard 1230. The proposed SEER, HSPF, EER, and COP levels are identical to the minimum efficiencies for conventional ducted air cooled air conditioners and applied heat pumps listed in ASHRAE 90.1.* ***Higher IEER*** *levels are being proposed because these products are primarily designed to operate in zoning applications and at part-load conditions. The first tier of IEER values is effective immediately, while the second phase will become effective on July 1, 2012."*

The minimum IEER requirements for VRF systems have been set at 10% higher than minimum unitary equipment requirements with approval from the VRF industry.

On July 1,2012 that minimum will be increased to 15% above the unitary requirement, further emphasizing the superior part-load performance of VRF equipment.

**TABLE 1**

**Electrically Operated Variable Refrigerant Flow Air-to-Air and Applied Heat Pumps–Minimum Efficiency Requirements**

| Equipment Type | Size Category | Heating Section Type | Sub-Category or Rating Condition | Minimum Efficiency | Test Procedure |
|---|---|---|---|---|---|
| VRF Air Cooled, (cooling mode) | <65,000 Btu/h | All | VRF Multi-split System | 13.0 SEER | AHRI 1230 |
| | ≥65,000 Btu/h and <135,000 Btu/h | Electric Resistance (or none) | VRF Multi-split System | 11.0 EER<br>12.3 IEER<br>12.9 IEER (as of 7/1/2012) | |
| | ≥65,000 Btu/h and <135,000 Btu/h | Electric Resistance (or none) | VRF Multi-split System with Heat Recovery | 10.8 EER<br>12.1 IEER<br>12.7 IEER (as of 7/1/2012) | |
| | ≥135,000 Btu/h and <240,000 Btu/h | Electric Resistance (or none) | VRF Multi-split System | 10.6 EER<br>11.8 IEER<br>12.3 IEER (as of 7/1/2012) | |
| | ≥135,000 Btu/h and <240,000 Btu/h | Electric Resistance (or none) | VRF Multi-split System with Heat Recovery | 10.4 EER<br>11.6 IEER<br>12.1 IEER (as of 7/1/2012) | |
| | ≥240,000 Btu/h | Electric Resistance (or none) | VRF Multi-split System | 9.5 EER<br>10.6 IEER<br>11.0 IEER (as of 7/1/2012) | |
| | ≥240,000 Btu/h | Electric Resistance (or none) | VRF Multi-split System with Heat Recovery | 9.3 EER<br>10.4 IEER<br>10.8 IEER (as of 7/1/2012) | |
| VRF Water Source, (cooling mode) | <65,000 Btu/h | All | VRF Multi-split systems 86°F entering water | 12.0 SEER | AHRI 1230 |
| | ≥65,000 Btu/h h | All | VRF Multi-split systems 86°F entering water | 11.8 EER | |
| | ≥65,000 Btu/h and <135,000 Btu/h | All | VRF Multi-split systems 86°F entering water | 12.0 EER | |
| | ≥65,000 Btu/h and <135,000 Btu/h | All | VRF Multi-split systems 86°F entering water | 11.8 EER | |
| | ≥135,000 Btu/h | All | VRF Multi-split systems 86°F entering water | 10.0 EER | |
| | ≥135,000 Btu/h | All | VRF Multi-split systems 86°F entering water | 9.8 EER | |
| VRF Ground Water Source, (cooling mode) | ≥135,000 Btu/h | All | VRF Multi-split System 59°F entering water | 16.2 EER | AHRI 1230 |
| | ≥135,000 Btu/h | All | VRF Multi-split System 59°F entering water | 16.0 EER | |
| | ≥135,000 Btu/h | All | VRF Multi-split System 59°F entering water | 13.8 EER | |
| | ≥135,000 Btu/h | All | VRF Multi-split System 59°F entering water | 13.6 EER | |

Note: For efficiency values tested in accordance with AHRI-1230, contact your local Mitsubishi Electric sales representative

Certificate Number FM33568

# CITY MULTI® R2-Series: The first two-pipe heat recovery system that simultaneously cools and heats

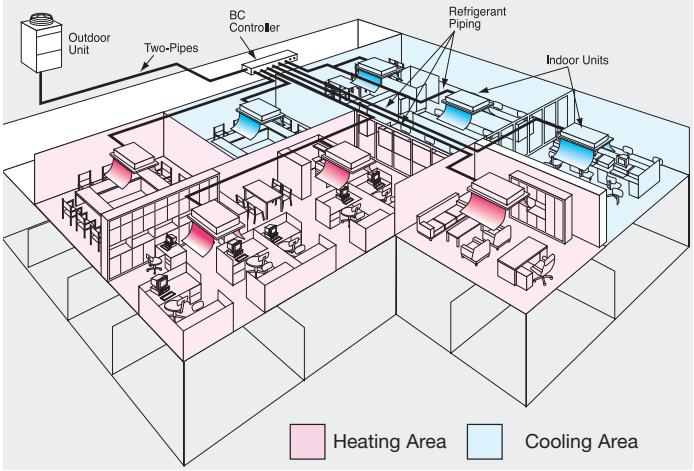
The R2-Series simultaneously cools and heats different zones within a building to provide energy-saving, heat-recovery operation through the use of the BC Controller. The R2-Series can support up to 50 indoor units. Modular units feature low operating sound, easy piping and maintenance design, and are lightweight. **R2-Series systems are available in both 208/230V and 460V up to 24 tons for different applications, (6-20 ton units meet ENERGY STAR® Light commercial requirements and will exceed proposed ASHRAE 90.1 efficiency ratings for 2010).**

The CITY MULTI R2-Series offers the ultimate in freedom and flexibility. Cool one zone while heating another. Set up zones to maximize simultaneous operation: interior/perimeter or eastern/western exposure. Each zone gets the cooling or heating that is needed at any time.

CITY MULTI R2-Series Variable Refrigerant Flow systems offer the ultimate in enhanced comfort and effective energy usage. R2-Series outdoor unit modules use a single INVERTER-driven compressor (Variable Frequency Drive) per module to provide highly responsive cooling and heating performance. By responding to indoor and outdoor temperature fluctuations, by adjusting the compressor speed to optimize energy usage, systems vary power consumption. The variable-capacity indoor units are controlled by electronic expansion valves, which allow operation only at the levels required to maintain a consistently comfortable indoor environment without wasting energy.

## Heat Recovery (R2-/WR2-Series)

### Simultaneous cooling and heating




## Simultaneous operation

CITY MULTI systems provide simultaneous cooling and heating any time of year above 23° F. So there are a significant number of days when the CITY MULTI R2-Series takes advantage of simultaneous operation, while maximizing comfort. This innovation minimizes energy wasted by being expelled outdoors and results in optimum energy usage.

## Year-round energy savings

CITY MULTI R2-Series VRF systems provide continuous energy savings. During warm weather, R2-Series systems deliver the precise amount of cooling to the zones requiring conditioning. During cold weather, R2-Series systems provide outstanding heating performance because of the high-speed capabilities of the INVERTER-driven compressor in the outdoor unit.

Most of the year, R2-Series systems operate in partial-load conditions, so the INVERTER-driven compressor runs only at the speeds necessary to provide the required amount of cooling and heating.

Using a two-pipe refrigerant circuit, the system heats one or more zones while simultaneously cooling one or more additional zones.

## Effective energy usage

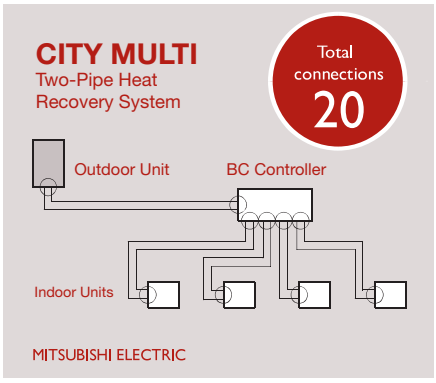
The total *applied* capacity of the R2-Series system's indoor units can be up to 150% of the capacity of the outdoor unit. This is made possible by taking advantage of load diversity and simultaneous cooling/heating operation. CITY MULTI VRF systems can satisfy a significantly higher building load by efficiently distributing the capacity to the outdoor unit and indoor units while using much less energy.

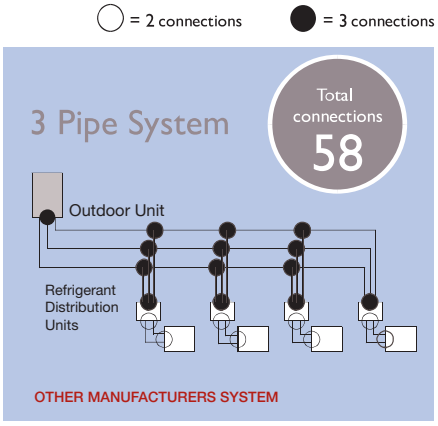
## Simplified connections

With the Twinning Kit accessory, the modular units easily combine in the field to create a larger capacity system. Only two refrigerant pipes need to be twinned, saving time and materials. Oil and pressure equalization lines aren't needed when combining modules. This also helps to reduce installation cost.

# Advantages of CITY MULTI two-pipe systems

The advantages of the two-pipe CITY MULTI system become very obvious when it comes to installation. The illustration s below compare the minimum number of connections required for simultaneous cooling and heating system with four indoor units. The CITY MULTI system requires only 20 connections versus 58 for a three-pipe system. As the number of indoor units grow, so do the two-pipe installations savings, in terms of connections (refrigerant and electrical) as well as maintenance access.

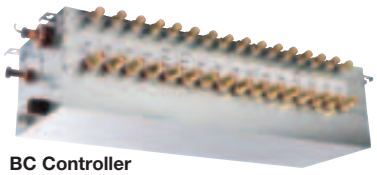



# BC Controller

The BC Controller is the technological heart of the CITY MULTI R2-/WR2-Series. It works in unison with the outdoor unit to provide simultaneous cooling and heating, something no other two-pipe system can do.

The Single BC Controller is connected to the outdoor unit by two refrigerant pipes, and to each indoor unit by a series of two pipes, depending on the indoor unit count.



**BC Controller**

The Main BC Controller and up to two optional Sub BC Controllers connect the outdoor unit to the system's indoor units. A Single or Main BC Controller is required for each CITY MULTI R2-/WR2-Series installation. The BC Controller model and size selected depends on how many indoor units will be operated from each outdoor unit, your total capacity requirements, and your installation needs. Each set of ports supports up to 54,000 Btu/h of capacity.

- **Single BC Controller:**
  Used when only one BC controller is required. For systems with up to 120,000 Btu/h nominal cooling capacity.
- **Main BC Controller:**
  For systems with up to 288,000 Btu/h nominal cooling capacity and when use of Sub BC Controllers is desired.
- **Sub BC Controller:**
  Used with a Main BC controller to connect additional indoor units. A maximum of two Sub BC Controllers can be connected to one Main BC Controller per system.

# Increased pipe length

The R2-Series system offers flexibility and reduced costs for refrigerant piping. The system may have a maximum total length of refrigerant piping from 1,804 to 2,624 feet one way, depending on outdoor unit model.

| **Refrigerant piping lengths** | **Maximum feet** |
|---|---|
| Total length | 1,804 - 2,624 |
| - Maximum total length is dependent on the outdoor unit model and distance between BC controller. | |
| Farthest Indoor from Outdoor | 541 (623 equivalent) |
| Maximum length between outdoor and single/main BC controller | 360 |
| Maximum length between single/main BC controller and indoor | 131-196 |
| **Vertical differentials between units** | **Maximum feet** |
| Indoor/outdoor (outdoor higher) | 164* |
| Indoor/outdoor (outdoor lower) | 131 |
| Indoor/BC controller (single/main) | 49 |
| - Maximum length between single/main BC controller and indoor is dependent upon the vertical differential between the single/main BC controller and the indoor unit. | |
| Indoor/indoor | 49 |
| Controller/Sub BC Controller | 49 |

*Can be extended. Ask your local Mitsubishi Electric representative for more details.

# R2-SERIES SPECIFICATIONS

| Model Name | | 208/230V | PURY-P72TJMU-A (-BS) | PURY-P96TJMU-A (-BS) | PURY-P120TJMU-A (-BS) | PURY-P144TJMU-A (-BS) |
|---|---|---|---|---|---|---|
| | | 460V | PURY-P72YJMU-A (-BS) | PURY-P96YJMU-A (-BS) | PURY-P120YJMU-A (-BS) | PURY-P144YJMU-A (-BS) |
| Power source | | | 208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz | | | |
| Capacity (Nominal) *1 | Cooling | BTU / h | 72,000 | 96,000 | 120,000 | 144,000 |
| | | kW | 5.66 | 7.8 | 9.99 | 12.43 |
| | | A | 17.4 / 15.7 / 7.8 | 24.0 / 21.7 / 10.8 | 30.8 / 27.8 / 13.9 | 38.3 / 34.6 / 17.3 |
| | Heating | BTU / h | 80,000 | 108,000 | 135,000 | 160,000 |
| | | kW | 6.16 | 8.66 | 11.02 | 13.20 |
| | | A | 18.9 / 17.1 / 8.5 | 26.7 / 24.1 / 12.0 | 33.9 / 30.7 / 15.3 | 40.7 / 36.8 / 18.4 |
| Electrical Supply | MCA | A | 27 / 25 / 13 | 35 / 32 / 16 | 49 / 46 / 23 | 59 / 54 / 27 |
| | MOCP | A | 40 / 30 / 15 | 50 / 50 / 25 | 70 / 70 / 30 | 90 / 80 / 40 |
| Fan | Type x Quantity | | Propeller Fan x 1 | | Propeller Fan x 2 | |
| | Air flow rate | cfm | 6,180 | | 10,600 | 12,010 |
| | Motor Output | kW | 0.92 | 0.92 | 0.92+0.92 | |
| | External static pressure | | Selectable; 0, 0.12 or 0.24"WG; factory set to 0"W.G. | | | |
| Compressor | Type x Quantity | | INVERTER-driven Scroll Hermetic x 1 | | | |
| | Operating Range | | 16% to 100% | 17% to 100% | 15% to 100% | 13% to 100% |
| | Direct-drive INVERTER Motor output | kW | 5.1 | 7.0 | 8.1 | 9.5 |
| | Crankcase heater | W | 35 | 45 | | |
| | Lubricant | | MEL32 | | | |
| Refrigerant | Type | | R410A | | | |
| External finish | | | Pre-coated galvanized steel sheet (Plus Powder Coating for -BS type) <MUNSELL 5Y 8/1 or Similar> | | | |
| Dimensions H x W x D | Height | In. | 65" | | | |
| | Width | In. | 36-1/4" | 48-1/16" | 68-15/16" | |
| | Depth | In. | 29-15/16" | | | |
| Net Weight | | Pounds | 519 / 552 | 585 / 618 | 695 / 728 | |
| Sound pressure level (measured in anechoic room) | | dB <A> | 58.0 | | 60.0 | 61.0 |
| Protection devices | High Pressure Protection | | High pressure sensor, High pressure switch | | | |
| | Compressor / Fan | | Over-heat protection / Thermal switch | | | |
| | Inverter | | Overheat and Overcurrent Protection | | | |
| Refrigerant Pipe Dimensions | Low Pressure (Brazed) | In. | 3/4" | 7/8" | 1-1/8" | |
| | High Pressure (Brazed) | In. | 5/8" | 3/4" | | 7/8" |
| Indoor unit connectable | Total capacity | | 50 to 150% of outdoor unit capacity | | | |
| | Model / Quantity | | P06 to P96 / 1 to 18 | P06 to P96 / 1 to 24 | P06 to P96 / 1 to 30 | P06-P96 / 1 to 36 |
| Operating Temperature Range | Cooling | D.B. | **Outdoor: 23 to 115° F | | | |
| | Heating | W.B. | Outdoor: -4 to +60° F | | | |

Note: Rating Conditions:
*1 Cooling: Indoor: 80˚F (27˚C) DB / 67˚F (19˚C) WB; Outdoor: 95˚F (35˚C) DB.
*2 Note for Low Ambient
Heating: Indoor: 70˚F (21˚C) DB; Outdoor: 47˚F (8˚C) DB / 43˚F (6˚C) WB.
-BS indicates Seacoast Protection option.
LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts.
See our website for details on specific additional application installation coverage.

** For details on extended ambient cooling operation range down to -10 FDB see Low Ambient Cooling section.
**Specifications are subject to change.**

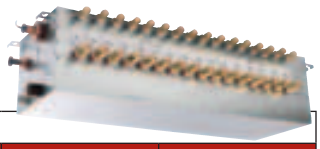
| Model Name | | | 208/230V | PURY-P168TSJMU-A (-BS) *2 | PURY-P192TSJMU-A (-BS) *2 | PURY-P216TSJMU-A (-BS) *2 | PURY-P240TSJMU-A (-BS) *2 | PURY-P264TJMU-A (-BS) *2 *5 | PURY-P288TSJMU-A (-BS) *2 *5 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | With 1 PURY-P72TJMU-A (-BS) and 1 PURY-P96TJMU-A (-BS) *3 | With 2 PURY-P96TJMU-A (-BS) *3 | With 1 PURY-P96TJMU-A (-BS) and 1 PURY-P120TJMU-A (-BS) *3 | With 2 PURY-P120TJMU-A (-BS) *3 | With 1 PURY-P120TJMU-A (-BS) and 1 PUHY-P144TJMU-A (-BS) *3 | With 2 PURY-P144TJMU-A (-BS) *3 |
| | | | 460V | PURY-P168YSJMU-A (-BS) *2 | PURY-P192YSJMU-A (-BS) *2 | PURY-P216YSJMU-A (-BS) *2 | PURY-P240YSJMU-A (-BS) *2 | PURY-P264YJMU-A (-BS) *2 *5 | PURY-P288YSJMU-A (-BS) *2 *5 |
| | | | | With 1 PURY-P72YJMU-A (-BS) and 1 PURY-P96YJMU-A (-BS) *3 | With 2 PURY-P96YJMU-A (-BS) *3 | With 1 PURY-P96YJMU-A (-BS) and 1 PURY-P120YJMU-A (-BS) *3 | With 2 PURY-P120YJMU-A (-BS) *3 | With 1 PURY-P120YJMU-A (-BS) and 1 PURY-P144YJMU-A (-BS) *3 | With 2 PURY-P144YJMU-A (-BS) *3 |
| Power source | | | | 208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz | | | | 208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz | |
| Capacity (Nominal) *1 | Cooling | BTU / h | | 168,000 | 192,000 | 216,000 | 240,000 | 264,000 | 288,000 |
| | | kW | | 13.86 *3 | 16.07 *3 | 18.32 *3 | 20.58 *3 | 23.09 *3 | 25.61 *3 |
| | | A | | 42.7 / 38.6 / 19.3 *3 | 49.5 / 44.8 / 22.4 *3 | 56.5 / 51.0 / 25.5 *3 | 63.4 / 57.4 / 28.7 *3 | 71.2 / 64.4 / 32.2 *3 | 78.9 / 71.4 / 35.7 *3 |
| | Heating | BTU / h | | 188,000 | 215,000 | 243,000 | 270,000 | 295,000 | 320,000 |
| | | kW | | 15.26 *3 | 17.84 *3 | 20.27 *3 | 22.70 *3 | 24.95 *3 | 27.19 *3 |
| | | A | | 47.0 / 42.5 / 21.2 *3 | 55.0 / 49.7 / 24.8 *3 | 62.5 / 56.5 / 28.2 *3 | 70.0 / 63.3 / 31.6 *3 | 76.9 / 69.5 / 34.7 *3 | 83.8 / 75.8 / 37.9 *3 |
| Fan | Type x Quantity | | | Refer to PURY-P72TJMU-A (-BS) / PURY-P96TJMU-A (-BS) and PURY-P72YJMU-A (-BS) / PURY-Y96JMU-A (-BS) Specifications on page ?? | Refer to PURY-P96TJMU-A (-BS) and PURY-P96YJMU-A (-BS) Specifications on page ?? | Refer to PURY-P96TJMU-A (-BS) / PURY-P120TJMU-A (-BS) and PURY-P96YJMU-A (-BS) / PURY-P120YJMU-A (-BS) Specifications on page ?? | Refer to PURY-P120TJMU-A (-BS) and PURY-P120YJMU-A (-BS) Specifications on page ?? | Refer to PURY-P120TJMU-A (-BS) / PURY-P144TJMU-A (-BS) and PURY-P120YJMU-A (-BS) / PURY-P144YJMU-A (-BS) Specifications on page ?? | Refer to PURY-P144TJMU-A (-BS) and PURY-P144YJMU-A (-BS) Specifications on page ?? |
| | Air flow rate | cfm | | | | | | | |
| | Direct-drive INVERTER Motor Output | kW | | | | | | | |
| | External static pressure | | | | | | | | |
| Compressor | Type x Quantity | | | | | | | | |
| | Operating Range | | | 7% to 100% | 9% to 100% | 8% to 100% | 8% to 100% | 7% to 100% | 7% to 100% |
| | Direct-drive INVERTER Motor output | kW | | Refer to PURY-P72TJMU-A (-BS) / PURY-P96TJMU-A (-BS) and PURY-P72YJMU-A (-BS) / PURY-Y96JMU-A (-BS) Specifications on page 18 | Refer to PURY-P96TJMU-A (-BS) and PURY-P96YJMU-A (-BS) Specifications on page 18 | Refer to PURY-P96TJMU-A (-BS) / PURY-P120TJMU-A (-BS) and PURY-P96YJMU-A (-BS) / PURY-P120YJMU-A (-BS) Specifications on page 18 | Refer to PURY-P120TJMU-A (-BS) and PURY-P120YJMU-A (-BS) Specifications on page 18 | Refer to PURY-P120TJMU-A (-BS) / PURY-P144TJMU-A (-BS) and PURY-P120YJMU-A (-BS) / PURY-P144YJMU-A (-BS) Specifications on page 18 | Refer to PURY-P144TJMU-A (-BS) and PURY-P144YJMU-A (-BS) Specifications on page 18 |
| | Crankcase heater | W | | | | | | | |
| | Lubricant | | | | | | | | |
| Refrigerant | Type | | | | | | | | |
| External finish | | | | | | | | | |
| Dimensions H x W x D | Height | In. | | | | | | | |
| | Width | In. | | | | | | | |
| | Depth | In. | | | | | | | |
| Net Weight | | Pounds | | | | | | | |
| Sound pressure level (measured in anechoic room) | | dB(A) | | 61.0 | | 62.5 | 63.0 | 63.5 | 64.0 |
| Protection devices | High Pressure Protection | | | High pressure sensor, High pressure switch | | | | | |
| | Compressor / Fan | | | Over-heat protection / Thermal switch | | | | | |
| | Inverter | | | Overheat and Overcurrent Protection | | | | | |
| Refrigerant Pipe Dimensions | Low Pressure (Brazed) | In. | | 1-1/8 | | 1-1/8 | 1-3/8 | | |
| | High Pressure (Brazed) | In. | | 7/8 | | 1-1/8 | 1-1/8 | | |
| Indoor unit connectable | Total capacity | | | 50 to 150% of outdoor unit capacity<br>50 to 150% of outdoor unit capacity | | | | | |
| | Model / Quantity | | | P06-P96 / 1 to 42 | P06-P96 / 1 to 48 | P06-P96 / 2 to 50 *4 | P06-P96 / 2 to 50 *4 | P06-P96 / 2 to 50 *4 | P06-P96 / 2 to 50 *4 |
| Operating Temperature Range | Cooling | D.B. | | **Outdoor: 23 to 115° F | | | | Outdoor: 23 to 115° F | |
| | Heating | W.B. | | Outdoor: -4 to +60° F | | | | Outdoor: -4 to +60° F | |

*1 *1 Rating Conditions: *1 Cooling: Indoor: 80˚F (27˚C) DB / 67˚F (19˚C) WB; Outdoor: 95˚F (35˚C) DB. Heating: Indoor: 70˚F (21˚C) DB; Outdoor: 47˚F (8˚C) DB / 43˚F (6˚C) WB.
*2 Twinning Kit is required for combining two individual outdoor units in the field for PURY-P-T(Y)SJMU combined systems.
*3 Each individual outdoor unit requires a separate electrical connection. Reference electrical data for each individual outdoor unit.
*4 Maximum connectable no. of branch pipes is 48. -BS indicates Seacoast Protection option.
*5
LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts. See our website for details on specific additional application installation coverage.
**Specifications are subject to change.**

* 264 and 288 require use -HA,BC controller
** For details on extended ambient cooling operation range down to -10 FDB see Low Ambient Cooling section.
NOTES: In systems with considerably long piping runs, the outdoor units may exhibit slightly louder than normal sound pressure levels when in heating mode.

The outdoor twinning kit (low pressure) should be connected to the low pressure side of the outdoor unit. If the connected units are different capacities, the outdoor twinning kit (low pressure) should be installed in the unit with the largest capacity.

# BC CONTROLLER SPECIFICATIONS
## for R2-Series and WR2-Series Systems (Heat Recovery)



### CMB-P-NU-G (Single BC) Specifications

| Model Name | | | CMB-P105NU-G | CMB-P106NU-G | CMB-P108NU-G | CMB-P1010NU-G | CMB-P1013NU-G | CMB-P1016NU-G |
|---|---|---|---|---|---|---|---|---|
| Number of Branches | | | 5 | 6 | 8 | 10 | 13 | 16 |
| Power Source | | | 208/230V, 1-phase, 60 Hz | | | | | |
| Power Input | Cooling | W | 73 | 86 | 112 | 138 | 178 | 217 |
| | Heating | W | 33 | 40 | 53 | 66 | 86 | 106 |
| Current (208/230V) | Cooling | A | 0.35/0.32 | 0.41/0.37 | 0.54/0.49 | 0.66/0.60 | 0.86/0.77 | 1.04/0.94 |
| | Heating | A | 0.16/0.14 | 0.19/0.17 | 0.25/0.23 | 0.32/0.29 | 0.41/0.37 | 0.51/0.46 |
| External Finish | | | Unit: Galvanized steel plate; Drain pan: Pre-coated galvanized sheets plus powder coating | | | | | |
| Dimensions | Height | Inches | 11-3/16 | 11-3/16 | 11-3/16 | 11-3/16 | 11-3/16 | 11-3/16 |
| | Width | Inches | 25-17/32 | 25-17/32 | 25-17/32 | 25-17/32 | 43-1/4 | 43-1/4 |
| | Depth | Inches | 17-1/32 | 17-1/32 | 17-1/32 | 17-1/32 | 17-1/32 | 17-1/32 |
| Net Weight | | Pounds | 72 | 76 | 84 | 94 | 126 | 138 |
| Connectable Outdoor Unit | | | PURY-P72/96/120THMU-A(-BS), PURY-P72/96/120YHMU-A(-BS), PQRY-P72/96TGMU-A | | | | | |
| Refrigerant Pipe Dimensions | To Outdoor Unit PURY-P72 and Water-source Unit PQRY-P72 | Low Pressure (in.) | 3/4 (Brazed) | | | | | |
| | | High Pressure (in.) | 5/8 (Brazed) | | | | | |
| | To Outdoor Unit PURY-P96 and Water-source Unit PQRY-P96 | Low Pressure (in.) | 7/8 (Brazed) | | | | | |
| | | High Pressure (in.) | 3/4 (Brazed) | | | | | |
| | To Outdoor Unit PURY-P120 | Low Pressure (in.) | 1-1/8 (Brazed) | | | | | |
| | | High Pressure (in.) | 3/4 (Brazed) | | | | | |
| | To Indoor Unit *1 | Gas Pipe (in.) | 5/8 (Flare) | | | | | |
| | | Liquid Pipe (in.) | 3/8 (Flare) | | | | | |
| Max. Connected Capacity for All Branches | | Btu/h | 189,000 | 189,000 | 189,000 | 189,000 | 189,000 | 189,000 |
| Indoor Unit Capacity Connectable to One Branch | | | 54,000 Btu/h or less per branch | | | | | |
| Drain pipe | | | O.D. 1-1/4" | | | | | |

*1 BC controller includes reducers for all branches. 5/8" flare to 1/2" braze, 3/8" flare to 1/4" braze.

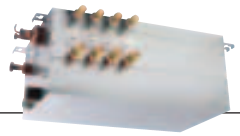
**Specifications are subject to change.**

### CMB-P-NU-GA/HA (Main BC) Specifications

| Model Name | | | CMB-P108NU-GA | CMB-P1010NU-GA | CMB-P1013NU-GA | CMB-P1016NU-HA |
|---|---|---|---|---|---|---|
| Number of Branches | | | 8 | 10 | 13 | 16 |
| Power Source | | | 208/230V, 1-phase, 60 Hz | | | |
| Power Input | Cooling | W | 112 | 138 | 178 | 274/353 |
| | Heating | W | 53 | 66 | 86 | 137/177 |
| Current (208/230V) | Cooling | A | 0.54/0.49 | 0.66/0.60 | 0.86/0.77 | 1.32/1.54 |
| | Heating | A | 0.25/0.23 | 0.32/0.29 | 0.41/0.37 | 0.66/0.77 |
| External Finish | | | Unit: Galvanized steel plate; Drain pan: Pre-coated galvanized sheets plus powder coating | | | |
| Dimensions | Height | Inches | 11-7/16 | 11-7/16 | 11-7/16 | 11-7/16 |
| | Width | Inches | 43-3/4 | 43-3/4 | 43-3/4 | 43-3/4 |
| | Depth | Inches | 20-1/2 | 20-1/2 | 20-1/2 | 20-1/2 |
| Net Weight | | Pounds | 122 | 132 | 148 | 172 |
| Connectable Outdoor Unit | | | PURY-P72/96/120/144/168/192/216/240T(S)JHMU-A(BS), 264, 288<br>PURY-P72/96/120/144/168/192/216/240Y(S)HMU-A(-BS), PQRY-P72/96TGMU-A (HA) | | | |
| Refrigerant Pipe Dimensions | To Outdoor Unit PURY-P72 and Water-source Unit PQRY-P72 | Low Pressure (in.) | 3/4 (Brazed) | | | |
| | | High Pressure (in.) | 5/8 (Brazed) | | | |
| | To Outdoor Unit PURY-P96 and Water-source Unit PQRY-P96 | Low Pressure (in.) | 7/8 (Brazed) | | | |
| | | High Pressure (in.) | 3/4 (Brazed) | | | |
| | To Outdoor Unit PURY-P120 and Water-source | Low Pressure (in.) | 1-1/8 (Brazed) | | | |
| | | High Pressure (in.) | 3/4 (Brazed) | | | |
| | To Outdoor Unit PURY-P144/168/192 and Water-source | Low Pressure (in.) | 1-1/8 (Brazed) | | | |
| | | High Pressure (in.) | 7/8 (Brazed) | | | |
| | To Outdoor Unit PURY-P216/240/264/288 and PQRY P216/240 | Low Pressure (in.) | 1-1/8 (Brazed) | | | |
| | | High Pressure (in.) | 1-1/8 (Brazed) | | | |
| | To Outdoor Unit PURY-P240/264/288 | Low Pressure (in.) | 1-3/8" | | | |
| | | High Pressure (in.) | 1-1/8" | | | |
| | To Indoor Unit *1 | Gas (in.) | 5/8 (Flare) | | | |
| | | Liquid (in.) | 3/8 (Flare) | | | |
| Max. connected capacity for all branches | | Btu/h | 360,000 | 360,000 | 360,000 | 432,000 |
| Max. Connected Capacity to Sub BC Controller(s) *2 | | Btu/h | 126,000 | 126,000 | 126,000 | 126,000 |
| Indoor Unit Capacity Connectable to One Branch | | | 54,000 Btu/h or less per branch | | | |
| Drain pipe | | | O.D. 1-1/4" | | | |

*1 BC controller includes reducers for all branches. 5/8" flare to 1/2" braze, 3/8" flare to 1/4" braze.
*2 If two sub BC controllers are connected and at least one is a CMB-P1016NU-HB, the maximum connected capacity is 168,000 Btu/h.

**Specifications are subject to change.**



## CMB-P-NU-GB, HB (Sub BC) Specifications

| Model Name | | | CMB-P104NU-GB | CMB-P108NU-GB | CMB-P1016NU-HB *2 |
|---|---|---|---|---|---|
| Number of Branches | | | 4 | 8 | 16 |
| Power Source | | | 208/230V, 1-phase, 60 Hz | | |
| Power Input | Cooling | W | 53 | 106 | 314 |
| | Heating | W | 27 | 53 | 157 |
| Current (208/230V) | Cooling | A | 0.25/0.23 | 0.51/0.46 | 1.17/1.37 |
| | Heating | A | 0.13/0.12 | 0.25/0.23 | 0.59/0.69 |
| External Finish | | | Unit: Galvanized steel plate; Drain pan: Pre-coated galvanized sheets plus powder coating | | |
| Dimensions | Height | Inches | 11-3/16 | | |
| | Width | Inches | 25-17/32 | | 43-1/4 |
| | Depth | Inches | 17-1/32 | | |
| Net Weight | | Pounds | 62 | 82 | 136 |
| Refrigerant Pipe Dimensions | To Indoor Unit *1 | Gas Pipe (in.) | 5/8 (Flare) | | |
| | | Liquid Pipe (in.) | 3/8 (Flare) | | |
| Max. Connected Capacity for All Branches | | Btu/h | 126,000 | 126,000 | 126,000 |
| Indoor Unit Capacity Connectable to One Branch | | | 54,000 Btu/h or less per branch | | |
| Drain pipe | | | O.D. 1-1/4" | | |

*1 BC controller includes reducers for all branches. 5/8" flare to 1/2" braze, 3/8" flare to 1/4" braze.

**Specifications are subject to change.**

## Refrigerant Line Capacity from Main BC Controller to Sub BC Controller(s)

| | Low Pressure | High Pressure | Liquid |
|---|---|---|---|
| Total downstream capacity < 72,000 Btu/h (nominal cooling capacity) | 3/4" (Brazed) | 5/8" (Brazed) | 3/8" (Brazed) |
| Total downstream capacity between 73,000 - 108,000 Btu/h (nominal cooling capacity) | 7/8" (Brazed) | 3/4" (Brazed) | 3/8" (Brazed) |
| Total downstream capacity between 109,000 - 126,000 Btu/h (nominal cooling capacity) | 1-1/8" (Brazed) | 3/4" (Brazed) | 1/2" (Brazed) |
| Total downstream capacity between 127,000 - 144,000 Btu/h (nominal cooling capacity) | 1-1/8" (Brazed) | 7/8" (Brazed) | 1/2" (Brazed) |
| Total downstream capacity between 145,000 - 168,000 Btu/h (nominal cooling capacity) | 1-1/8" (Brazed) | 7/8" (Brazed) | 5/8" (Brazed) |

**Specifications are subject to change.**

DIAMONDBACK™

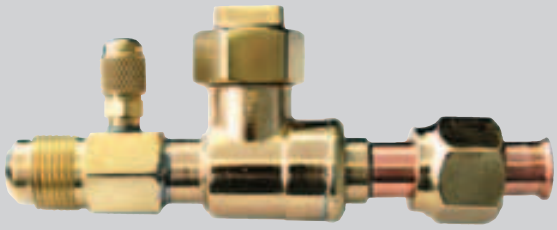
## BV-Series Ball Valves

C UL US
LISTED 891N
REFRIGERANT
VALVE

Model numbers:

**BV14FFSI / BV38FFSI / BV12FFSI / BV58FFSI**

- Size available: 3/8"; 5/8"
- Fully factory assembled
- Furnace brazed and pressure tested
- Each ball valve is equipped with Schrader Valve for refrigerant service
- Design working pressure: 700 PSIG
- Temperature range:-40˚ F to +325˚ F (-40˚ C to +149˚ C)
- Forged brass body and seal cap
- Teflon® seals and gaskets (no synthetic O-rings)
- Seal cap design permits valve operation without removal of seal cap
- One year limited materials and workmanship warranty on Ball Valves



- Full Port Design
- 700 PSIG Rated
- R-410A Compatible
- Flare Connections

| Part Number | SAE Flare | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| BV38FFSI | 3/8" | 6.30 | 2.67 | 1.80 | 1.22 | 1.42 | 1.10 |
| BV58FFSI | 5/8" | 6.64 | 2.67 | 1.80 | 1.28 | 1.42 | 1.10 |

*Ball valves come with an insulation piece

# CITY MULTI® Y-Series: The two-pipe zoned system designed for heat pump operation

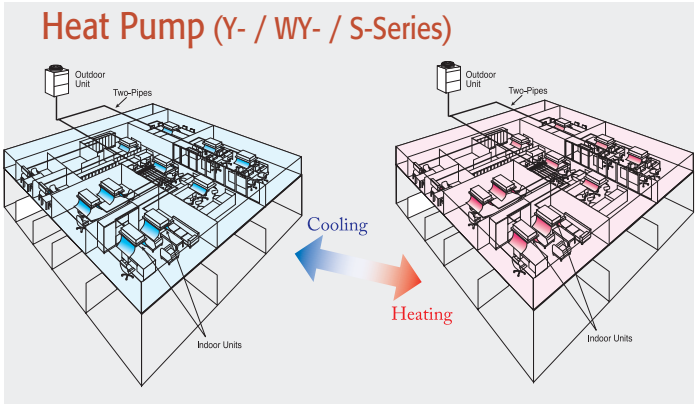
Y-Series outdoor units are flexible enough to cool or heat up to 50 individual zones, maximizing building design options. They feature low operating sound, easy piping and maintenance design, and light weight. Y-Series units are available in both 208/230V and 460V up to 30 tons for different applications, **(6-20 ton units meet ENERGY STAR® Light Commercial Requirements and will exceed proposed ASHRAE 90.1 efficiency ratings for 2010).**

## Design flexibility

Flexibility is the key with the CITY MULTI Y-Series. The Y-Series, just like the R2-Series, can condition up to 50 zones intelligently. The Y-Series takes advantage of Mitsubishi Electric's INVERTER technology to deliver the precise amount of cooling or heating to all connected zones. By using T-branches and headers, the Y-Series provides the ultimate in piping design flexibility that is truly simple in application. The BC Controller is not used for Y-Series installations.

## The ultimate in zoning

The CITY MULTI Y-Series uses a two-pipe system with a wide variety of indoor units and individual zone controllers to provide the ultimate zoning system. Headers and T-branches simplify the piping design and provide design freedom for placement of both piping and indoor units. Individual zones are managed by remote controllers placed in each zone or by the centralized controller. The BC Controller is not used for Y-Series installations.




## Intelligent energy usage

The highly responsive INVERTER technology and customized individual zones of the CITY MULTI Y-Series provide year–round savings. In warm summer months, the Y-Series provides exceptional zoned cooling, and in cold winter months the INVERTER-driven compressor provides outstanding heating performance.

CITY MULTI systems, in combination with Mitsubishi Electric's TG-2000 integrated system software configured with Tenant Billing, are able to monitor and log each zone's energy usage via a networked PC.

## Larger projects, more options

New to the modular outdoor unit design specifications is an option for either a 208/230V, 3-Phase, 60Hz powersource or a 460V, 3-Phase, 60Hz power source. Another feature is larger capacities for the larger projects–to 30 tons–and an increased number of connectable indoor units–50–with increased line lengths. These capabilities increase the range of potential applications for which an architect, engineer or building owner cab specify CITY MULTI VRF systems.

## Increased pipe length

The Y-Series two-pipe system offers great piping design flexibility. Two pipes run from the Y–series outdoor unit to connect up to 50 indoor units via simple T-branches, headers, or combination of both. A Y-Series system may have a total combined length of refrigerant piping up to 3,280 feet one way. The farthest distance between the Y-Series outdoor unit and any one of the 50 indoor units is 541 feet. The outdoor unit can be placed 164* feet vertically above the lowest indoor unit or 131 feet vertically below the highest indoor unit. The Y-Series offers exceptional line lengths that will accommodate just about any commercial application, including multi-story office buildings, universities, and many, many others.

| **Refrigerant piping lengths** | **Maximum feet** |
|---|---|
| Total length | 3,280 |
| Farthest indoor from outdoor | 541 (623 equivalent) |
| Farthest indoor unit from first branch | 134 – 184 |

| **Vertical differentials between units** | **Maximum feet** |
|---|---|
| Indoor/outdoor (outdoor higher) | 164* |
| Indoor/outdoor (outdoor lower) | 131 |
| Indoor/BC controller (single/main) | 49 |
| - Maximum length between single/main BC controller and indoor is dependent upon the vertical differential between the single/main BC controller and the indoor unit. | |
| Indoor/indoor | 49 |
| Main BC Controller/Sub BC Controller | 49 |

# Y-SERIES SPECIFICATIONS

| Model Name | | | 208/230V | PUHY-P72TJMU-A (-BS) | PUHY-P96TJMU-A (-BS) | PUHY-P120TJMU-A (-BS) | PUHY-P144TJMU-A (-BS) |
|---|---|---|---|---|---|---|---|
| | | | 460V | PUHY-P72YJMU-A (-BS) | PUHY-P96YJMU-A (-BS) | PUHY-P120YJMU-A (-BS) | PUHY-P144YJMU-A (-BS) |
| Power source | | | | 208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz | | | |
| Capacity (Nominal) *1 | Cooling | BTU / h | | 72,000 | 96,000 | 120,000 | 144,000 |
| | | kW | | 5.27 | 7.95 | 9.90 | 12.42 |
| | | A | | 16.2 / 14.6 / 7.3 | 24.5 / 22.1 / 11.0 | 30.5 / 27.6 / 13.8 | 38.3 / 34.6 / 17.3 |
| | Heating | BTU / h | | 80,000 | 108,000 | 135,000 | 160,000 |
| | | kW | | 5.68 | 8.54 | 10.41 | 13.08 |
| | | A | | 17.5 / 15.8 / 7.9 | 26.3 / 23.8 / 11.9 | 32.1 / 29.0 / 14.5 | 40.3 / 36.4 / 18.2 |
| Electrical Supply | MCA | A | | 25 / 24 / 12 | 36 / 34 / 17 | 49 / 46 / 23 | 59 / 54 / 27 |
| | Maximum Fuse Size | A | | 30 / 30 / 15 | 50 / 50 / 25 | 70 / 60 / 30 | 90 / 80 / 40 |
| Fan | Type x Quantity | | | Propeller Fan x 1 | | Propeller Fan x 2 | |
| | Air flow rate | cfm | | 6,180 | | 12,010 | |
| | Motor Output | kW | | 0.92 | 0.92 | 0.92+0.92 | |
| | External static pressure | | | Selectable; 0, 0.12 or 0.24"WG; factory set to 0"W.G. | | | |
| Compressor | Type x Quantity | | | INVERTER-driven Scroll Hermetic x 1 | | | |
| | Operating Range | | | 18% to 100% | 19% to 100% | 18% to 100% | 14% to 100% |
| | Direct-drive INVERTER Motor output | kW | | 5.1 | 6.8 | 8.1 | 9.5 |
| | Crankcase heater | W | | 35 | 45 | | |
| | Lubricant | | | MEL32 | | | |
| Refrigerant | Type | | | R410A | | | |
| External finish | | | | Pre-coated galvanized steel sheet (Plus Powder Coating for -BS type) <MUNSELL 5Y 8/1 or Similar> | | | |
| Dimensions H x W x D | Height | In. | | 65" | | | |
| | Width | In. | | 36-1/4" | 48-1/16" | 68-15/16" | |
| | Depth | In. | | 29-15/16" | | | |
| Net Weight | | Pounds | | 441 / 474 | 497 / 530 | 629 / 662 | |
| Sound pressure level (measured in anechoic room) | | dB <A> | | 58.0 | 58.0 | 60.0 | 61.0 |
| Protection devices | High Pressure Protection | | | High pressure sensor, High pressure switch | | | |
| | Compressor / Fan | | | Over-heat protection / Thermal switch | | | |
| | Inverter | | | Overheat and Overcurrent Protection | | | |
| Refrigerant Pipe Dimensions | Low Pressure (Brazed) | In. | | 3/4" | 7/8" | | 1-1/8" |
| | High Pressure (Brazed) | In. | | 3/8" | 3/8" (1/2", length to first joint≥ 295') | 3/8" (1/2", length to first joint≥ 131') | 1/2" |
| Indoor unit connectable | Total capacity | | | 50 to 130% of outdoor unit capacity | | | |
| | Model / Quantity | | | P06 to P96 / 1 to 18 | P06 to P96 / 1 to 20 | P06 to P96 / 1 to 26 | P06-P96 / 1 to 31 |
| Operating Temperature Range | Cooling | D.B. | | **Outdoor: 23 to 115° F | | | |
| | Heating | W.B. | | Outdoor: -4 to +60° F | | | |

Note: Rating Conditions: *1 Cooling: Indoor: 80°F (27°C) DB / 67°F (19°C) WB; Outdoor: 95°F (35°C) DB.
Heating: Indoor: 70°F (21°C) DB; Outdoor: 47°F (8°C) DB / 43°F (6°C) WB.
-BS indicates Seacoast Protection option.
LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts.
See our website for details on specific additional application installation coverage.

** For details on extended ambient cooling operation range down to -10 FDB see Low Ambient Cooling section.

**Specifications are subject to change.**

# Y-SERIES SPECIFICATIONS (continued)

| Model Name | | | 208/230V | PUHY-P168TSJMU-A (-BS) *2 | PUHY-P192TSJMU-A (-BS) *2 | PUHY-P216TSJMU-A (-BS) *2 | PUHY-P240TSJMU-A (-BS) *2 | PUHY-P264TJMU-A (-BS) *2 |
|---|---|---|---|---|---|---|---|---|
| | | | | With 1 PUHY-P72TJMU-A (-BS) and 1 PUHY-P96TJMU-A (-BS) *3 | With 1 PUHY-P72TJMU-A (-BS) and 1 PUHY-P120TJMU-A (-BS) *3 | With 1 PUHY-P96TJMU-A (-BS) and 1 PUHY-P120TJMU-A (-BS) *3 | With 2 PUHY-P120TJMU-A (-BS) *3 | With 1 PUHY-P120TSUMU-A (-BS) and 1 PUHY-P144TJMU-A (-BS) *3 |
| | | | 460V | PUHY-P168YSJMU-A (-BS) *2 | PUHY-P192YSJMU-A (-BS) *2 | PUHY-P216YSJMU-A (-BS) *2 | PUHY-P240YSJMU-A (-BS) *2 | PUHY-P264YTSUMU-A (-BS) *2 |
| | | | | With 1 PUHY-P72YJMU-A (-BS) and 1 PUHY-P96YJMU-A (-BS) *3 | With 1 PUHY-P72YJMU-A (-BS) and 1 PUHY-P120YJMU-A (-BS) *3 | With 1 PUHY-P96YJMU-A (-BS) and 1 PUHY-P120YJMU-A (-BS) *3 | With 2 PUHY-P120YJMU-A (-BS) *3 | With 1 PUHY-P120YJMU-A (-BS) and 1 PUHY-P144YJMU-A (-BS) *3 |
| Power source | | | | 208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz | | | | |
| Capacity (Nominal) *1 | Cooling | BTU / h | | 168,000 | 192,000 | 216,000 | 240,000 | 264,000 |
| | | kW | | 13.62 *3 | 15.63 *3 | 18.39 *3 | 20.39 *3 | 22.99 *3 |
| | | A | | 42.0 / 37.9 / 18.9 *3 | 48.2 / 43.5 / 21.7 *3 | 56.7 / 51.2 / 25.6 *3 | 62.8 / 56.8 / 28.4 *3 | 70.9 / 64.1 / 32.0 *3 |
| | Heating | BTU / h | | 188,000 | 215,000 | 243,000 | 270,000 | 295,000 |
| | | kW | | 14.65 *3 | 16.57 *3 | 19.52 *3 | 21.44 *3 | 24.19 *3 |
| | | A | | 45.1 / 40.8 / 20.4 *3 | 51.1 / 46.2 / 23.1 *3 | 60.2 / 54.4 / 27.2 *3 | 66.1 / 59.7 / 29.8 *3 | 74.6 / 67.4 / 33.7 *3 |
| Fan | Type x Quantity | | | Refer to PUHY-P72TJMU-A (-BS) / PUHY-P96TJMU-A (-BS) and PUHY-P72YJMU-A (-BS) / PUHY-Y96JMU-A (-BS) Specifications on page 23 | Refer to PUHY-P72TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) and PUHY-P72YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) Specifications on page 23 | Refer to PUHY-P96TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) and PUHY-P96YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) Specifications on page 23 | Refer to PUHY-P120TJMU-A (-BS) and PUHY-P120YJMU-A (-BS) Specifications on page 23 | Refer to PUHY-P120TJMU-A (-BS) / PUHY-P144TJMU-A (-BS) and PUHY-P120YJMU-A (-BS) / PUHY-P144YJMU-A (-BS) Specifications on page 23 |
| | Air flow rate | cfm | | | | | | |
| | Direct-drive INVERTER Motor Output | kW | | | | | | |
| | External static pressure | | | | | | | |
| Compressor | Type x Quantity | | | | | | | |
| | Operating Range | | | 8% to 100% | 6% to 100% | 9% to 100% | 8% to 100% | 7% to 100% |
| | Direct-drive INVERTER Motor output | kW | | Refer to PUHY-P72TJMU-A (-BS) / PUHY-P96TJMU-A (-BS) and PUHY-P72YJMU-A (-BS) / PUHY-Y96JMU-A (-BS) Specifications on page 23 | Refer to PUHY-P72TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) and PUHY-P72YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) Specifications on page 23 | Refer to PUHY-P96TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) and PUHY-P96YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) Specifications on page 23 | Refer to PUHY-P120TJMU-A (-BS) and PUHY-P120YJMU-A (-BS) Specifications on page 23 | Refer to PUHY-P120TJMU-A (-BS) / PUHY-P144TJMU-A (-BS) and PUHY-P120YJMU-A (-BS) / PUHY-P144YJMU-A (-BS) Specifications on page 23 |
| | Crankcase heater | W | | | | | | |
| | Lubricant | | | | | | | |
| Refrigerant | Type | | | | | | | |
| External finish | | | | | | | | |
| Dimensions H x W x D | Height | In. | | | | | | |
| | Width | In. | | | | | | |
| | Depth | In. | | | | | | |
| Net Weight | | Pounds | | | | | | |
| Sound pressure level (measured in anechoic room) | | dB(A) | | 61.0 | 62.5 | 62.5 | 63.0 | 63.5 |
| Protection devices | High Pressure Protection | | | High pressure sensor, High pressure switch | | | | |
| | Compressor / Fan | | | Over-heat protection / Thermal switch | | | | |
| | Inverter | | | Overheat and Overcurrent Protection | | | | |
| Refrigerant Pipe Dimensions | Low Pressure (Brazed) | In. | | 1-1/8 | | | | 1-3/8 |
| | High Pressure (Brazed) | In. | | 5/8 | | | | 3/4 |
| Indoor unit connectable | Total capacity | | | 50 to 130% of outdoor unit capacity | | | | |
| | Model / Quantity | | | P06-P96 / 1 to 36 | P06-P96 / 1 to 41 | P06-P96 / 2 to 46 | P06-P96 / 2 to 50 | P06-P96 / 2 to 50 |
| Operating Temperature Range | Cooling | D.B. | | **Outdoor: 23 to 115° F | | | | |
| | Heating | W.B. | | Outdoor: -4 to +60° F | | | | |

*1 Rating Conditions: *1 Cooling: Indoor: 80˚F (27˚C) DB / 67˚F (19˚C) WB; Outdoor: 95˚F (35˚C) DB. Heating: Indoor: 70˚F (21˚C) DB; Outdoor: 47˚F (8˚C) DB / 43˚F (6˚C) WB.

*2 Twinning Kit is required for combining two or three individual outdoor units in the field for PUHY-P-T(S)JHMU combined systems.

*3 Each individual outdoor unit requires a separate electrical connection. Reference electrical data for each individual outdoor unit.

** For details on extended ambient cooling operation range down to -10 FDB see Low Ambient Cooling section.

-BS indicates Seacoast Protection option.

LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts. See our website for details on specific additional application installation coverage..

**Specifications are subject to change.**

# Y-SERIES SPECIFICATIONS (continued)

| Model Name | | | 208/230V | PUHY-P288TSJMU-A (-BS) *2 | PUHY-P312TSJMU-A (-BS) *2 | PUHY-P336TSJMU-A (-BS) *2 | PUHY-P360TSJMU-A (-BS) *2 |
|---|---|---|---|---|---|---|---|
| | | | | With 2 PUHY-P144TJMU-A (-BS) *3 | With 1 PUHY-P72TJMU-A (-BS) and 2 PUHY-P120TJMU-A (-BS) *3 | With 1 PUHY-P96TJMU-A (-BS) and 2 PUHY-P120TJMU-A (-BS) *3 | With 1 PUHY-P96TJMU-A (-BS), 1 PUHY-P120YJUM-A (-BS), and 1 PUHY-P144TJMU-A (-BS) *3 |
| | | | 460V | PUHY-P288YSJMU-A (-BS) *2 | PUHY-P312YSJMU-A (-BS) *2 | PUHY-P336YSJMU-A (-BS) *2 | PUHY-P360YSJMU-A (-BS) *2 |
| | | | | With 2 PUHY-P144YJMU-A (-BS) *3 | With 1 PUHY-P72YJMU-A (-BS) and 2 PUHY-P120YJMU-A (-BS) *3 | With 1 PUHY-P96YJMU-A (-BS) and 2 PUHY-P120YJMU-A (-BS) *3 | With 1 PUHY-P96YJMU-A (-BS), 1 PUHY-P120YJMU-A (-BS), and 1 PUHY-P144YJMU-A (-BS) *3 |
| Power source | | | | 208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz | | | |
| Capacity (Nominal) *1 | Cooling | BTU / h | | 288,000 | 312,000 | 336,000 | 360,000 |
| | | kW | | 25.59 *3 | 25.82 *3 | 28.58 *3 | 31.18 *3 |
| | | A | | 78.9 / 71.3 / 35.6 *3 | 79.6 / 72.0 / 36.0 *3 | 88.1 / 79.7 / 39.8 *3 | 96.1 / 86.9 / 43.4 *3 |
| | Heating | BTU / h | | 320,000 | 350,000 | 378,000 | 403,000 |
| | | kW | | 26.94 *3 | 27.3 *3 | 30.24 *3 | 32.99 *3 |
| | | A | | 83.0 / 75.1 / 37.5 *3 | 84.1 / 76.1 / 38.0 *3 | 93.2 / 84.3 / 42.1 *3 | 101.7 / 92.0 / 46.0 *3 |
| Fan | Type x Quantity | | | Refer to PUHY-P144TJMU-A (-BS) and PUHY-P144YJMU-A (-BS) Specifications on page 23 | Refer to PUHY-P72TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) and PUHY-P72YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) Specifications on page 23 | Refer to PUHY-P96TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) and PUHY-P96YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) Specifications on page 23 | Refer to PUHY-P96TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) / PUHY-P144TJMU-A (-BS) and PUHY-P96YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) / PUHY-P144YJMU-A (-BS) Specifications on page 23 |
| | Air flow rate | cfm | | | | | |
| | Direct-drive INVERTER Motor Output | kW | | | | | |
| | External static pressure | | | | | | |
| Compressor | Type x Quantity | | | | | | |
| | Operating Range | | | 7% to 100% | 4% to 100% | 7% to 100% | 6% to 100% |
| | Direct-drive INVERTER Motor output | kW | | Refer to PUHY-P144TJMU-A (-BS) and PUHY-P144YJMU-A (-BS) Specifications on page 23 | Refer to PUHY-P72TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) and PUHY-P72YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) Specifications on page 23 | Refer to PUHY-P96TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) and PUHY-P96YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) Specifications on page 23 | Refer to PUHY-P96TJMU-A (-BS) / PUHY-P120TJMU-A (-BS) / PUHY-P144TJMU-A (-BS) and PUHY-P96YJMU-A (-BS) / PUHY-P120YJMU-A (-BS) / PUHY-P144YJMU-A (-BS) Specifications on page 23 |
| | Crankcase heater | W | | | | | |
| | Lubricant | | | | | | |
| Refrigerant | Type | | | | | | |
| External finish | | | | | | | |
| Dimensions H x W x D | Height | In. | | | | | |
| | Width | In. | | | | | |
| | Depth | In. | | | | | |
| Net Weight | | Pounds | | | | | |
| Sound pressure level (measured in anechoic room) | | dB(A) | | 64.0 | 64.5 | | 65.0 |
| Protection devices | High Pressure Protection | | | High pressure sensor, High pressure switch | | | |
| | Compressor / Fan | | | Over-heat protection / Thermal switch | | | |
| | Inverter | | | Overheat and Overcurrent Protection | | | |
| Refrigerant Pipe Dimensions | Low Pressure (Brazed) | In. | | 1-3/8 | | 1-5/8 | |
| | High Pressure (Brazed) | In. | | 3/4 | | | |
| Indoor unit connectable | Total capacity | | | 50 to 130% of outdoor unit capacity | | | |
| | Model / Quantity | | | P06-P96 / 2 to 50 | | | |
| Operating Temperature Range | Cooling | D.B. | | *Outdoor: 23 to 115° F | | | |
| | Heating | W.B. | | Outdoor: -4 to +60° F | | | |

*1 Rating Conditions: *1 Cooling: Indoor: 80˚F (27˚C) DB / 67˚F (19˚C) WB; Outdoor: 95˚F (35˚C) DB. Heating: Indoor: 70˚F (21˚C) DB; Outdoor: 47˚F (8˚C) DB / 43˚F (6˚C) WB.
*2 Twinning Kit is required for combining two or three individual outdoor units in the field for PUHY-P-T(S)SJHMU combined systems.
*3 Each individual outdoor unit requires a separate electrical connection. Reference electrical data for each individual outdoor unit.

** For details on extended ambient cooling operation range down to -10 FDB see Low Ambient Cooling section.

-BS indicates Seacoast Protection option.
LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts. See our website for details on specific additional application installation coverage.

**Specifications are subject to change.**

# Bringing year-round comfort solutions to extreme climates

The Hyper-Heating INVERTER (H2i™) technology* is exclusively from Mitsubishi Electric and is available in select CITY MULTI® VRF models. The H2i™ series improves on the Y-Series by providing full heating capacity at 0° F outdoor ambient. H2i™ Y-Series units are available in 208/230V up to 16 tons for different applications **(6-16 ton units meet ENERGY STAR® Light Commercial Requirements and will exceed proposed ASHRAE 90.1 efficiency ratings for 2010).**

With our INVERTER-driven heat pump systems, you use energy effectively while maintaining the ideal comfort level. Now, with the integration of the innovative H2i technology, you experience the added benefit of superior heating performance–even on the coldest days of the year. This system has the capability to provide 100% heating capacity at 0˚ F and 84% heating capacity at -13˚ F.

## Warm air quickly!

On start up, a special circuit assures that normally dormant refrigerant quickly enters the conditioning cycle. This process rapidly increases the mass flow rate in the system, which quickly provides comfortable discharge temperatures from the indoor units.

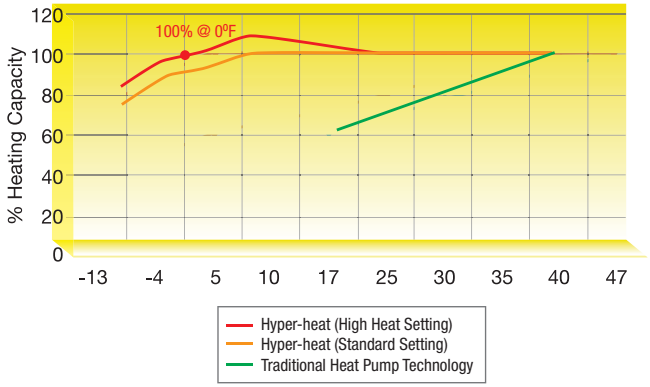
Even at -13˚ F outdoor temperature, the H2i system can provide 100˚ F discharge air temperature from the indoor unit. And at 5˚ F outdoor temperature and above, the discharge temperature reaches an impressive 110˚ F with a 40˚ F temperature rise.

## The technology behind the unequaled comfort

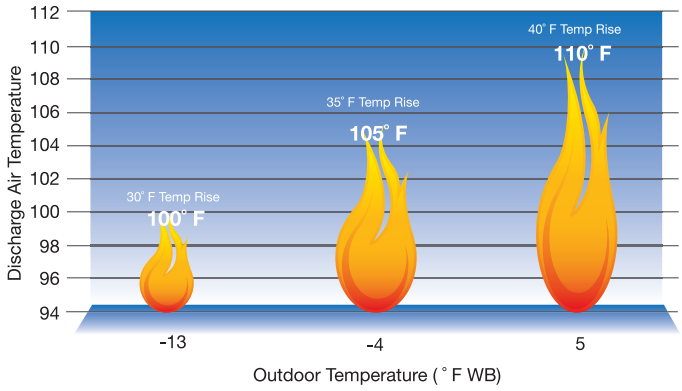
The Hyper-Heating INVERTER outdoor unit uses flash technology which recollects heat energy that is normally wasted in the flash process at the outdoor coil. This process helps the H2i system overcome issues commonly associated with conventional heat pumps, such as decreases in low-side pressure, refrigerant mass flow rate, and operational capacity.

The patent–pending flash process cools the compressor, allowing higher speeds at a lower outdoor temperature without overheating. This also allows for an increase in mass flow rate in the system providing phenomenal heating performance at low temperatures.

*Hyper Heating Inverter vs. Others*
*96,000 Btuh size, 70ºFWB entering indoor unit*




**Indoor Unit Heating Discharge Temperature**
**PEFY-P24 NMAU-E with 70˚ F entering air**




## Setting a new standard in performance

The Hyper-Heating INVERTER Y-Series combines the ultimate in application flexibility, powerful cooling and heating capabilities to deliver precise comfort control to multiple zones of a commercial or institutional building. The outdoor units deliver full-sized performance from a compact, space-saving design for ease of transportation and installation. The INVERTER-driven scroll compressor delivers the precise amount of comfort to the zones as required. Now, with its expanded heating capabilities, the CITY MULTI H2i Y-Series provides year-round comfort–even in extreme climates.

# H2i™ Y-SERIES SPECIFICATIONS

| Model Name | | | PUHY-HP72TJMU-A (-BS) | PUHY-HP96TJMU-A (-BS) | PUHY-HP144TSJMU-A (-BS) *2 | PUHY-HP192TSJMU-A (-BS) *2 |
|---|---|---|---|---|---|---|
| | | | | | With 2 PUHY-HP72TJMU-A (-BS) | With 2 PUHY-HP96TJMU-A (BS) |
| Power Source | | | 208/230V, 3-Phase, 60Hz | | | |
| Capacity *1 | Cooling | Btu/h | 72,000 | 96,000 | 144,000 | 192,000 |
| | Heating | Btu/h | 80,000 | 108,000 | 160,000 | 216,000 |
| Power Input | Cooling | kW | 5.60 | 8.16 | 11.54 *3 | 16.81 *3 |
| | Heating | kW | 6.14 | 8.80 | 12.65 *3 | 18.13 *3 |
| Current (208/230V) | Cooling | A | 17.2-15.6 | 25.1-22.7 | 35.5-32.1 *3 | 51.8-46.8 *3 |
| | Heating | A | 18.9-17.1 | 27.1-24.5 | 39.0-35.2 *3 | 55.9-50.5 *3 |
| Electrical Supply | MCA | A | 59 / 54 | 74 / 68 | 59 + 59 / 54 + 54 *3 | 74 + 74 / 68 + 68 *3 |
| | Recommended Fuse/ Breaker Size | A | 60 / 60 | 75 / 75 | 60 + 60 *3 | 75 + 75 *3 |
| | Maximum Fuse Size | A | 100 / 90 | 120 / 110 | 100 + 100 / 90 + 90 *3 | 120 + 120 / 110 + 110 *3 |
| Fan | Type x Quantity | | Propeller Fan x 1 | | Refer to PUHY-HP72TJMU-A (-BS) Specifications | Refer to PUHY-HP96TJMU-A (-BS) Specifications |
| | Airflow Rate | CFM | 6,180 | 7,950 | | |
| | Motor Output | kW | 0.92 | | | |
| Compressor | Operating Range | Cooling | 30% to 100% | 23% to 100% | 15% to 100% | 12% to 100% |
| | | Heating | 16% to 100% | 13% to 100% | 8% to 100% | 6% to 100% |
| | Type | | Inverter Scroll Hermetic | | Refer to PUHY-HP72TJMU-A (-BS) Specifications | Refer to PUHY-HP96TJMU-A (-BS) Specifications |
| | Motor Output | kW | 5.3 | 6.7 | | |
| | Crankcase Heater | W | 45 | | | |
| | Lubricant | | MEL32 | | | |
| Refrigerant | Type | | R410A | | | |
| External Finish | | | Pre-coated Galvanized Sheets (Plus Powder-coating for -BS types) <Munsell No. 5Y 8/1 or Similar> | | | |
| Dimensions | Height | In. | 65 | | | |
| | Width | In. | 36-1/4 | 48-1/16 | | |
| | Depth | In. | 29-15/16 | | | |
| Net Weight | | Lbs. | 497 | 585 | | |
| Sound Pressure Level (As Measured in an Anechoic Room) | | dB(A) | 56 (61 in Heating at -5° F Outdoor Temperature) | 57 (62 in Heating at -5° F Outdoor Temperature) | 59 (64 in Heating at -5° F Outdoor Temperature) | 60 (65 in Heating at -5° F Outdoor Temperature) |
| Protection Devices | High Pressure Protection | | High-pressure Sensor, High-pressure Switch | | | |
| | Compressor/Fan | | Overheat Protection / Thermal Switch | | | |
| | Inverter | | Overheat and Overcurrent Protection | | | |
| Refrigerant Pipe Dimensions | Low Pressure (Brazed) | In. | 3/4 | 7/8 | 1-1/8 | |
| | High Pressure (Brazed) | In. | 1/2 | | 5/8 | |
| Indoor Unit | Total Capacity | | 50 to 130% of Outdoor Unit Capacity | | | |
| | Quantity | | P06-P72/1-15 | P06-P96/1-20 | P06-P96/1-31 | P06-P96/1-41 |
| Operating Temperature Range | Cooling | | **Outdoor: 23° F D.B. to 109° F D.B. | | | |
| | Heating | | Outdoor: -13° F W.B. to +60° F W.B. | | | |

*1 Rating conditions (cooling)-Indoor: D.B. 26.7° C (80° F), W.B. 19.4° C (67° F); Outdoor: D.B. 35° C (95° F). Rating conditions (heating)-Indoor: D.B. 21.1° C (70° F); Outdoor: D.B. 8.3° C (47° F), W.B. 6.1° C (43° F).

*2 Twinning Kit CMY-Y100VBK2 is required for combining two individual outdoor units in the field for PUHY-HP-TSHJMU combined systems.

*3 Each individual outdoor unit requires a separate electrical connection. Reference electrical data for each individual outdoor unit.

** For details on extended ambient cooling operation range down to 0 FDB see Low Ambient Cooling section.

-BS indicates Seacoast Protection option.
LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts.
See our website for details on specific additional application installation coverage.

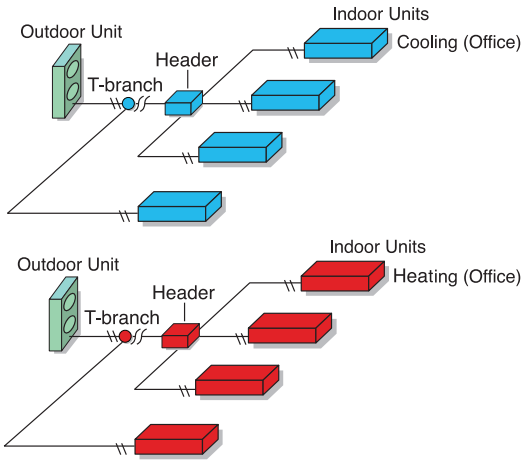
**Specifications are subject to change.**

# CITY MULTI® S-Series:
## Heat Pump
## solutions for the home or small office

The CITY MULTI S-Series is a single-phase heat pump system that is perfect for light commercial or large residential applications. Available in 36,000 or 48,000 Btu/h, the S-Series can provide cooling or heating for up to eight individual zones.

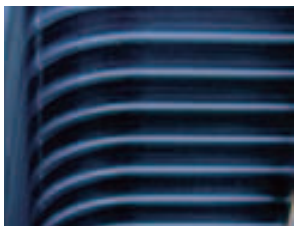
The CITY MULTI S-Series provides homes and small offices with all the features and benefits of our large commercial CITY MULTI Y-Series. The S-Series Solution features a single-phase outdoor unit with Variable Refrigerant Flow Zoning (VRF) technology and CITY MULTI Controls Network (CMCN) to cool or heat all zones with a choice of indoor unit styles. The compact outdoor unit utilizes R410A refrigerant and an INVERTER-driven compressor to use energy effectively. A maximum of eight CITY MULTI indoor units can be connected with up to 130% connected capacity, depending on diversity. The CITY MULTI Controls Network intelligently manages the CITY MULTI building comfort solution through zone controllers and system controllers (and optionally through a networked PC), to manage individual comfort and provide the ultimate building comfort solution.

*S-Series two-pipe cooling or heating system*




## Blue Fin treatment

The standard anti-corrosion Blue Fin treatment of the heat exchanger is especially effective in protecting the aluminum fins from pollution damage, such as smog and environmental pollens, which can reduce the capacity and life expectancy of the unit. All CITY MULTI R410A outdoor units are treated with Blue Fin prior to leaving the factory.



Additional seacoast protection of the frame and other component materials on all outdoor units is available as an option, as indicated on the model suffix number with a '-BS'.

| Refrigerant piping lengths | Maximum feet |
|---|---|
| Total length | 393 |
| Farthest indoor from Outdoor | 262 |
| Farthest indoor unit from first branch | 98 |

| Vertical differentials between units | Maximum feet |
|---|---|
| Indoor/outdoor (outdoor higher) | 98 |
| Indoor/outdoor (outdoor lower) | 65 |
| Indoor/indoor | 39 |

## Easy, flexible installation

The S-Series outdoor unit is easy to install and can be accessed for service through both a front and side panel. The unit's compact dimensions and easy accessibility allow multiple units to be stacked side-by-side in tight areas, saving valuable space and resources.

# S-SERIES SPECIFICATIONS

| Model Name | | | PUMY-P36NHMU(-BS) | PUMY-P48NHMU(-BS) |
|---|---|---|---|---|
| Power Source | | | 208/230V, 1-phase, 60Hz | |
| Capacity *1 | Cooling | Btu/h | 36,000 | 48,000 |
| | Heating | Btu/h | 40,000 | 54,000 |
| Power Input | Cooling | kW | 3.22 | 4.97 |
| | Heating | kW | 2.93 | 4.88 |
| Current (208-230V) | Cooling | A | 14.2/15.7 | 24.0/21.7 |
| | Heating | A | 12.9/14.2 | 23.6/21.3 |
| Electrical Supply | MCA | A | 26 | 26 |
| | Maximum Fuse Size | A | 30 | 30 |
| Fan | Type x Quantity | | Propeller Fan x 2 | |
| | Airflow Rate | CFM | 3,530 | |
| | Motor Output | kW | 0.086 x 2 | |
| Compressor | Type | | INVERTER-driven Scroll Hermetic | |
| | Motor Output | kW | 2.4 | |
| | Crankcase Heater | W | – | |
| | Lubricant | | FV50S | |
| Refrigerant | | | R410A | |
| External Finish | | | Galvanized Sheets (plus Powder Coating for -BS Model) Munsell 3Y 7.8/1.1 | |
| Dimensions | Height | Inches | 53-3/16 | |
| | Width | Inches | 37-7/16 | |
| | Depth | Inches | 13 (+1-3/16) | |
| Net Weight | | Pounds | 287 | |
| Sound Pressure Levels (As Measured in an Anechoic Room) | | dB(A) | 49/51 | 50/52 |
| Protection Devices | High Pressure Protection | | High Pressure Switch | |
| | Compressor/Fan | | Discharge Thermo and Over-current Detection | |
| | Inverter | | Over-current/Overheat Protection | |
| Refrigerant Pipe Dimensions | Low Pressure | Inches | 5/8 Flare | |
| | High Pressure | Inches | 3/8 Flare | |
| Indoor Unit | Total Capacity | | 50 - 130% of Outdoor Unit Capacity | |
| | Quantity | | P06-36/1-6 | P06-P54/1-8 |
| Operating Temperature Range | Cooling | | Outdoor: 23˚ FDB ~ 115˚ FDB;<br>50˚FDB ~ 115˚FDB if connecting PKFY-P06/08 Indoor Unit | |
| | Heating | | Outdoor: 0˚ FWB ~ 60˚ FWB | |

Note: Rating Conditions:
*1 Cooling: Indoor: 80˚F (27˚C) DB / 67˚F (19˚C) WB; Outdoor: 95˚F (35˚C) DB.
Heating: Indoor: 70˚F (21˚C) DB; Outdoor: 47˚F (8˚C) DB/ 43˚F (6˚C) WB.
-BS indicates seacoast protection option.
LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts.
See our website for details on specific additional application installation coverage.

**Specifications are subject to change.**

## PUMY-P-NHMU Energy Efficiencies

| Model | Indoor Unit Type | SEER | HSPF |
|---|---|---|---|
| PUMY-P36NHMU(-BS) | Non-ducted | 14.3 | 8.2 |
| | Ducted and Non-ducted | 14.3 | 8.2 |
| | Ducted | 14.3 | 8.2 |
| PUMY-P48NHMU (-BS) | Non-ducted | 15.5 | 8.7 |
| | Ducted and Non-ducted | 15 | 8.7 |
| | Ducted | 14.5 | 8.7 |

# CITY MULTI® W-Series: Modular Water-Source Systems that Simultaneously cool and heat or provide heat pump operation

New W-Series modular units combine the convenience of water-source systems with VRF technology. These units are 30% smaller than previous models and are easily installed indoors, which means that system performance efficiency is independent of outdoor ambient temperatures. The W-Series includes WR2 models for simultaneous cooling and heating, and WY models as powerful heat pumps.

The new modular W-Series water-source units are designed for buildings with closed loop boiler/water tower or geothermal loop systems. They combine the efficiency of water as a heat exchange medium with the INVERTER-driven compressor, providing effective energy use for optimum comfort in each connected zone. You can control temperature in every room, on every floor, in every building with Mitsubishi Electric's CITY MULTI systems. It's an innovative concept that is transforming the way the industry approaches building design, construction, and renovation. It's based on the understanding that every building has its own unique characteristics and challenges. The CITY MULTI VRF building comfort solution gives you the freedom to customize a solution that fits your building like a tailored suit fits a person. As usage patterns and building requirements change, the systems can be adapted to fit these new needs.

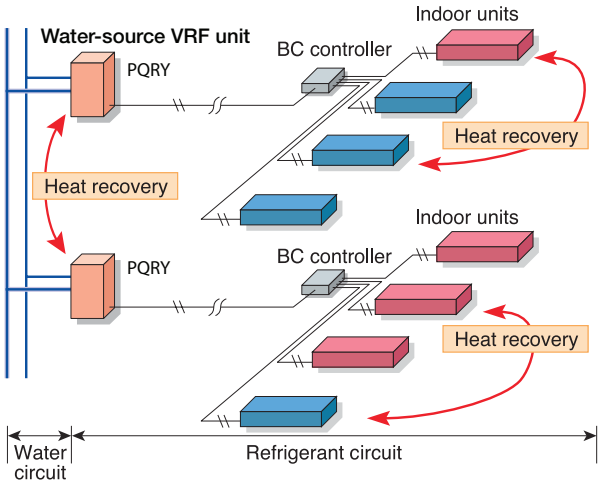
W-Series systems from CITY MULTI use water as a heat exchange medium and are intended to be installed inside, rather than outside a building. Zone cooling and heating is controlled by refrigerant piped between water-source unit, BC controller (R2-Series) or manifold (Y-series) and indoor units. W-Series systems can be designed with a wide selection of indoor model configurations and controllers. Indoor units can be monitored and operated individually with remote controllers–up to 50 from one central controller, or up to 2,000 using the TG2000 software and the CITY MULTI Controls Network (CMCN) integrates with LonWorks® and BACnet® for integrated systems control of the entire building.

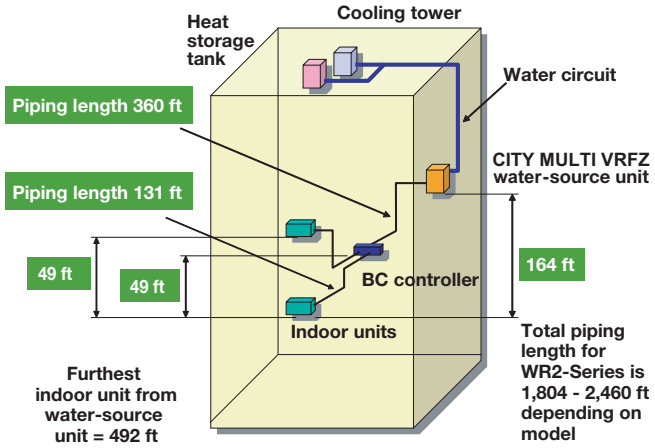
Applications include multi-story office buildings, government buildings, military buildings, medical facilities, nursing homes, schools and universities, hotels, resorts, casinos and multi-family dwellings.

## Double heat recovery

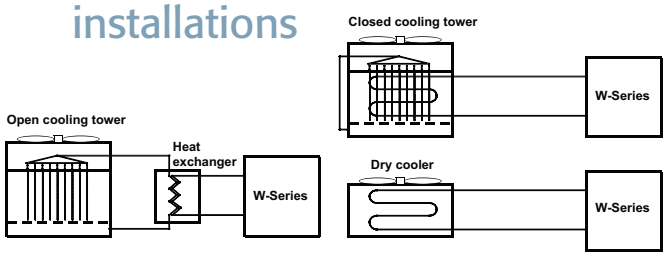
The double-heat recovery feature of the WR2-Series helps control energy that would normally be rejected to the atmosphere. First, within the system, energy is absorbed in units providing cooling. The energy is redirected by refrigerant to units that are in heating mode. Secondly, energy can be recovered between systems through the water loop. For example, a system providing primarily cooling is rejecting heat to the water loop. This energy could then be utilized by systems providing primarily heating.

Double Heat Recovery with WR2-Series





Heat storage tank
Cooling tower
Water circuit
Piping length 360 ft
Piping length 131 ft
CITY MULTI VRFZ water-source unit
49 ft
49 ft
BC controller
164 ft
Indoor units
Total piping length for WR2-Series is 1,804 - 2,460 ft depending on model
Furthest indoor unit from water-source unit = 492 ft

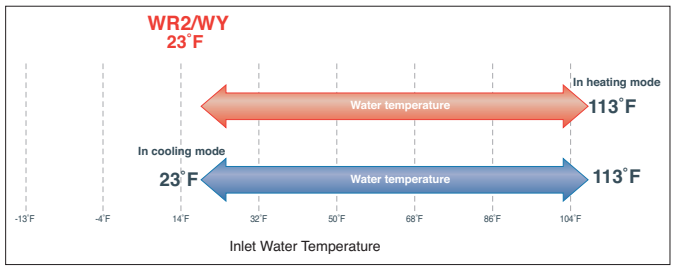
## Typical closed-loop installations




Closed-loop cooling towers recommended

## Extended temperature range

The updated WR2 and WY series CITY MULTI water source units can now handle entering water temperatures down to 23°F in both heating and cooling mode allowing more possibilities for geothermal applications. Coupling the water source units with a geothermal loop will not only provide the benefit of higher efficiencies by using a lower entering water temperature, but will also provide all the benefit of an inverter driven CITY MULTI system. Running the loop temperatures colder when the system is operating in cooling mode reduce the power required by the outdoor units by as much as 35%.




## CITY MULTI Systems and geothermal applications

CITY MULTI water cooled systems used in geothermal applications work by taking heat or rejecting heat from/to the ground. Closed loop systems accomplish this by circulating water through a series of wells or loops that are installed in the ground. This effectively turns the ground into a large heat exchanger.

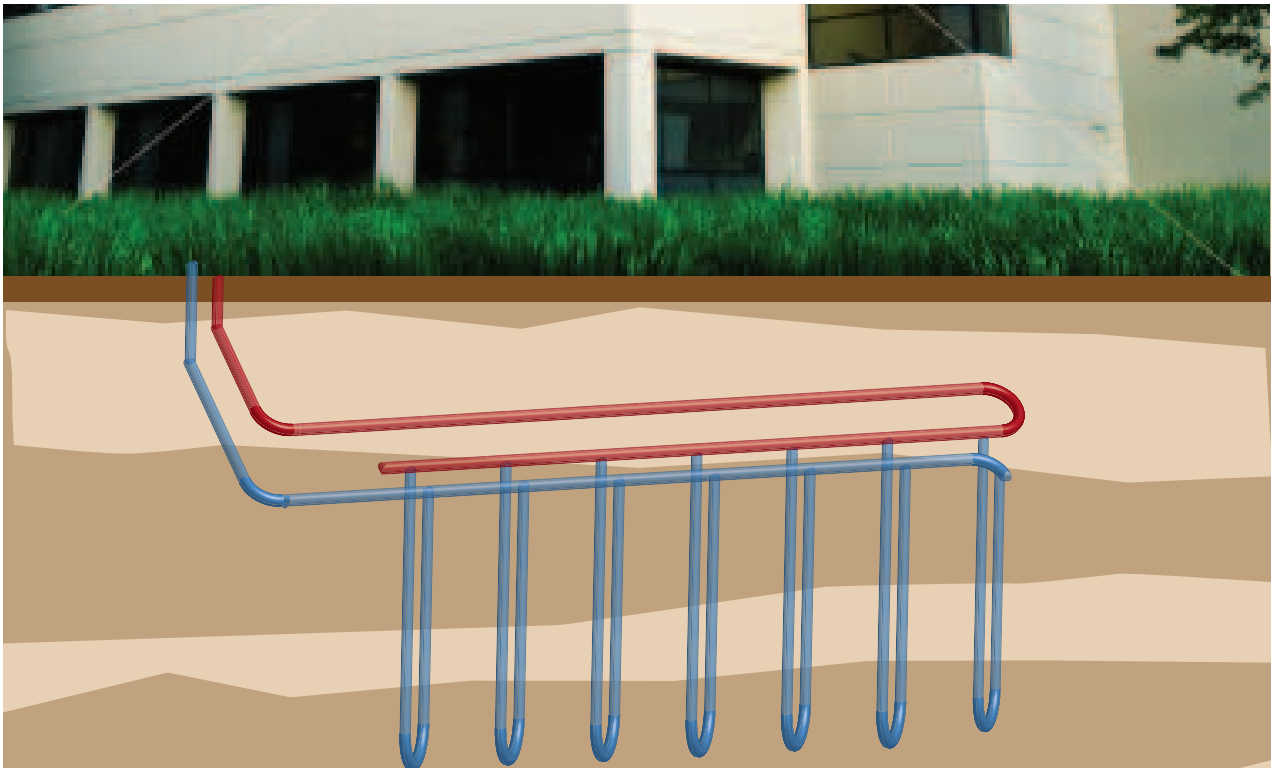
Because the ground remains relatively unaffected by outdoor ambient temperatures, the loop can be run at temperatures lower than ambient throughout the cooling season, and higher than ambient throughout the heating season. By running the loop at lower temperatures in the cooling season, the system becomes more efficient and by running the loop at higher temperatures during the heating season, it may reduce or remove the requirement for an auxiliary boiler to supplement the system.

## Available tax credits

Coupling the CITY MULTI system with a ground source loop could qualify the entire system for a 10% commercial tax credit provided that the building meets the following requirements:

- The system was placed in service between 10/3/2008 – 12/31/2016
- The building owner is not tax exempt
- The building is located in the United States

If the building meets these requirements, the building owner may be able to claim a 10% tax credit for the total installed cost of CITY MULTI geothermal system.



## *WR2-Series Heat Recovery Water-source Unit*

*(Requires BC Controller - refer to specifications on pages 20 - 21)*

| Model Name | | 208/230V | PQRY-P72THMU-A | PQRY-P96THMU-A | PQRY-P120THMU-A |
|---|---|---|---|---|---|
| | | 460V | PQRY-P72YHMU-A | PQRY-P96YHMU-A | PQRY-P120YHMU-A |
| Power source | | | 208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz | | |
| Capacity (Nominal) *1 | Cooling | BTU / h | 72,700 | 96,300 | 120,000 |
| | | kW | 3.97 | 5.77 | 7.73 |
| | | A | 12.6 / 11.4 / 5.7 | 17.9 / 16.2 / 8.1 | 23.6 / 21.4 / 10.6 |
| | Heating | BTU / h | 80,000 | 108,000 | 135,000 |
| | | kW | 3.83 | 6.18 | 7.62 |
| | | A | 11.8 / 10.7 / 5.3 | 19.1 / 17.2 / 8.6 | 23.5 / 21.3 / 10.6 |
| Electrical Supply | MCA | A | 16 / 15 / 8 | 23 / 21 / 11 | 30 / 27 / 14 |
| | Max. Fuse Size | A | 20 / 20 / 15 | 30 / 30 / 15 | 40 / 40 / 20 |
| Compressor | Type x Quantity | | INVERTER-driven Scroll Hermetic x 1 | | |
| | Operating Range | | 23% to 100% | 19% to 100% | 14% to 100% |
| | Direct-drive INVERTER Motor output | kW | 4.5 / 4.6 | 6.2 / 6.3 | 8.5 |
| | Crankcase heater | W | 51 | | |
| | Lubricant | | MEL32 | | |
| Circulating Water | Water Flow Rate | GPM | 25 | | |
| | Pressure Drop | Ft. (psi) | 6 / (3) | | |
| | Max Water Pressure 290 PSI / 2 MPA | | | | |
| Refrigerant | Type | | R410A | | |
| External finish | | | Acrylic-painted Steel Sheets | | |
| Dimensions | Height | In. | 43-5/16" | | |
| | Width | In. | 34-11/16" | | |
| | Depth | In. | 21-11/16" | | |
| Net Weight | | Pounds | 402 / 428 | | |
| Sound pressure level (measured in anechoic room) | | dB(A) | 47.0 | 49.0 | 51.0 |
| Protection devices | High Pressure Protection | | High pressure sensor, High pressure switch | | |
| | Compressor | | Overheat protection | | |
| | Inverter | | Overheat and Overcurrent Protection | | |
| Refrigerant Pipe Dimensions | Low Pressure (Brazed) | In. | 3/4 | 7/8 | |
| | High Pressure (Brazed) | In. | 5/8 | 3/4 | |
| Indoor unit connectable | Total capacity | | 50 to 150% of water-source unit capacity | | |
| | Model / Quantity | | P06 to P96 / 1 to 18 | P06 to P96 / 1 to 24 | P06 to P96 / 1 to 30 |
| Operating Temperature Range | Cooling | W.B. | Indoor: 59 to 75° F | | |
| | Heating | D.B. | Indoor: 59 to 81° F | | |
| Inlet Water Temperature Range | Cooling | | *50 to 113° F | | |
| | Heating | | *50 to 113° F | | |

Note: Rating Conditions

*1 Cooling: Indoor: 80° F (27°C) DB / 67° F (19°C) WB; Water Temperature: 85° F (29°C)
Heating: Indoor: 70° F (21°C) DB; Water Temperature: 70° F (21°C)

* Inlet water temperature range can be extended down to 23˚ F by flipping dip switch 3-9 to on. When dip switch 3-9 is on a glycol solution should always be used to prevent freezing.

LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts.
See our website for details on specific additional application installation coverage.

**Specifications are subject to change.**

# *WR2-Series Heat Recovery Water-source Unit (continued)*

## *(Requires BC Controller - refer to specifications on pages 20 - 21)*

| Model Name | | | 208/230V | PQRY-P144TSHMU-A *2<br>With 2 PQRY-P72THMU-A *3 | PQRY-P168TSHMU-A *2<br>With 1 PQRY-P72THMU-A and 1 PQRY-P96THMU-A *3 | PQRY-P192TSHMU-A *2<br>With 2 PQRY-P96THMU-A *3 | PQRY-P216TSHMU-A *2<br>With 1 PQRY-P96THMU-A and 1 PQRY-P120THMU-A *3 | PQRY-P240TSHMU-A *2<br>With 2 PQRY-P120THMU-A *3 |
|---|---|---|---|---|---|---|---|---|
| | | | 460V | PQRY-P144YSHMU-A *2<br>With 2 PQRY-P72YHMU-A *3 | PQRY-P168YSHMU-A *2<br>With 1 PQRY-P72YHMU-A and 1 PQRY-P96YHMU-A *3 | PQRY-P192YSHMU-A *2<br>With 2 PQRY-P96YHMU-A *3 | PQRY-P216YSHMU-A *2<br>With 1 PQRY-P96YHMU-A and 1 PQRY-P120YHMU-A *3 | PQRY-P240YSHMU-A *2<br>With 2 PQRY-P120YHMU-A *3 |
| Power source | | | | 208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz | | | | |
| Capacity (Nominal) *1 | Cooling | BTU / h | | 145,400 | 169,100 | 192,600 | 216,000 | 240,000 |
| | | kW | | 8.18 *3 | 10.02 *3 | 11.09 *3 | 13.90 *3 | 15.93 *3 |
| | | A | | 25.9 / 23.4 / 11.7 *3 | 31.4 / 28.4 / 14.2 *3 | 37.0 / 33.4 / 16.7 *3 | 42.8 / 38.7 / 19.3 *3 | 48.7 / 44.0 / 22.0 *3 |
| | Heating | BTU / h | | 160,000 | 188,000 | 216,000 | 243,000 | 270,000 |
| | | kW | | 7.89 *3 | 10.32 *3 | 12.74 *3 | 14.22 *3 | 15.70 *3 |
| | | A | | 24.3 / 22.0 / 11.0 *3 | 31.8 / 28.8 / 14.3 *3 | 39.3 / 35.5 / 17.7 *3 | 43.9 / 39.7 / 19.8 *3 | 48.4 / 43.8 / 21.8 *3 |
| Compressor | Operating Range | | | 11% to 100% | 10% to 100% | 9% to 100% | 8% to 100% | 7% to 100% |
| | Type x Quantity | | | Refer to PQRY-P72THMU-A and PQRY-P72YHMU-A Specifications on page 32 | Refer to PQRY-P72THMU-A / PQRY-P96THMU-A and PQRY-P72YHMU-A / PQRY-P96YHMU-A Specifications on page 32 | Refer to PQRY-P96THMU-A and PQRY-P96YHMU-A Specifications on page 32 | Refer to PQRY-P96THMU-A / PURY-P120THMU-A and PQRY-P96YHMU-A / PQRY-P120YHMU-A Specifications on page 32 | Refer to PQRY-P120THMU-A and PQRY-P120YHMU-A Specifications on page 32 |
| | Direct-drive INVERTER Motor output | kW | | | | | | |
| | Crankcase heater | W | | | | | | |
| | Lubricant | | | | | | | |
| Circulating Water | Water Flow Rate | GPM (L/s) | | | | | | |
| | Pressure Drop | Ft. (psi) | | | | | | |
| | Operation Volume Range | GPM (L/m) | | | | | | |
| Refrigerant | Type | | | | | | | |
| External finish | | | | | | | | |
| Dimensions | Height | In. | | | | | | |
| | Width | In. | | | | | | |
| | Depth | In. | | | | | | |
| Net Weight | | Pounds | | | | | | |
| Sound pressure level (measured in anechoic room) | | dB(A) | | 50.0 | 51.0 | 52.0 | 53.0 | 54.0 |
| Protection devices | High Pressure Protection | | | High pressure sensor, High pressure switch | | | | |
| | Compressor / Fan | | | Overheat protection / Thermal switch | | | | |
| | Inverter | | | Overheat and Overcurrent Protection | | | | |
| Refrigerant Pipe Dimensions | Low Pressure (Brazed) | In. | | 1-1/8 | | | | |
| | High Pressure (Brazed) | In. | | 7/8 | | | 1-1/8 | |
| Indoor unit connectable | Total capacity | | | 50 to 150% of outdoor unit capacity | | | | |
| | Model / Quantity | | | P06-P96 / 1 to 36 | P06-P96 / 1 to 42 | P06-P96 / 1 to 48 | P06-P96 / 2 to 50 *4 | P06-P96 / 2 to 50 *4 |
| Inlet Water Temperature Range | Cooling | | | *50 to 113° F | | | | |
| | Heating | | | *50 to 113° F | | | | |

Note: Rating Conditions

*1 Cooling: Indoor: 80° F (27°C) DB / 67° F (19°C) WB; Water Temperature: 85° F (29°C)
Heating: Indoor: 70° F (21°C) DB; Water Temperature: 70° F (21°C)

*2 Twinning kit is required for combining two individual outdoor units in the field for PQRY-P-T(S)HMU

*3 Each individual outdoor unit requires a separate electrical connection. Reference electrical data for each individual outdoor unit.

* Inlet water temperature range can be extended down to 23˚ F by flipping dip switch 3-9 to on. When dip switch 3-9 is on a glycol solution should always be used to prevent freezing.

LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts.
See our website for details on specific additional application installation coverage.

**Specifications are subject to change.**

# W-SERIES SPECIFICATIONS (continued)

## *WY-Series Heat Pump Water-source Unit*

| Model Name | | 208/230V | PQHY-P72THMU-A | PQHY-P96THMU-A | PQHY-P120THMU-A |
|---|---|---|---|---|---|
| | | 460V | PQHY-P72YHMU-A | PQHY-P96YHMU-A | PQHY-P120YHMU-A |
| Power source | | | 208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz | | |
| Capacity (Nominal) *1 | Cooling | BTU / h | 72,700 | 96,000 | 120,000 |
| | | kW | 3.85 | 5.61 | 7.51 |
| | | A | 12.2 / 11.0 / 5.5 | 17.4 / 15.8 / 7.8 | 22.9 / 20.8 / 10.3 |
| | Heating | BTU / h | 80,000 | 108,000 | 135,000 |
| | | kW | 3.83 | 6.18 | 7.62 |
| | | A | 11.8 / 10.7 / 5.3 | 19.1 / 17.2 / 8.6 | 23.5 / 21.3 / 10.6 |
| Electrical Supply | MCA | A | 16 / 14 / 7 | 22 / 22 / 10 | 29 / 26 / 13 |
| | Max. Fuse Size | A | 20 / 20 / 15 | 30 / 30 / 15 | 40 / 40 / 20 |
| Compressor | Type x Quantity | | INVERTER-driven Scroll Hermetic x 1 | | |
| | Operating Range | | 23% to 100% | 19% to 100% | 14% to 100% |
| | Direct-drive INVERTER Motor output | kW | 4.5 / 4.6 | 6.2 / 6.3 | 7.9 / 8.5 |
| | Crankcase heater | W | 51 | | |
| | Lubricant | | MEL32 | | |
| Circulating Water | Water Flow Rate | GPM | 25 | | |
| | Pressure Drop | Ft. (psi) | 6 / (3) | | |
| | Max Water Pressure | PSI (MPA) | 290 (2) | | |
| External finish | | | Acrylic-painted Steel Sheets | | |
| Dimensions | Height | In. | 43-5/16" | | |
| | Width | In. | 34-11/16" | | |
| | Depth | In. | 21-11/16" | | |
| Net Weight | | Pounds | 433 / 459 | | |
| Sound pressure level (measured in anechoic room) | | dB(A) | 47.0 | 49.0 | 51.0 |
| Protection devices | High Pressure Protection | | High pressure sensor, High pressure switch | | |
| | Compressor | | Overheat protection | | |
| | Inverter | | Overheat and Overcurrent Protection | | |
| Refrigerant Pipe Dimensions | Low Pressure (Brazed) | In. | 3/4" | 7/8" | |
| | High Pressure (Brazed) | In. | 3/8" | 3/8" (1/2", total length ≥ 295') | 3/8" (1/2",total length ≥ 131') |
| Indoor unit connectable | Total capacity | | 50 to 130% of water-source unit capacity | | |
| | Model / Quantity | | P06 to P96 / 1 to 15 | P06 to P96 / 1 to 20 | P06 to P96 / 1 to 26 |
| Inlet Water Temperature Range | Cooling | | *50 to 113° F | | |
| | Heating | | *50 to 113° F | | |

Note: Rating Conditions
*1 Cooling: Indoor: 80° F (27°C) DB / 67° F (19°C) WB; Water Temperature: 85° F (29°C)
Heating: Indoor: 70° F (21°C) DB; Water Temperature: 70° F (21°C)
* Inlet water temperature range can be extended down to 23˚ F by flipping dip switch 3-9 to on. When dip switch 3-9 is on a glycol solution should always be used to prevent freezing.

LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts.
See our website for details on specific additional application installation coverage.

**Specifications are subject to change.**

# WY-Series Heat Pump Water-source Unit *(continued)*

| Model Name | | | 208/230V | PQHY-P144TSHMU-A *2 | PQHY-P168TSHMU-A *2 | PQHY-P192TSHMU-A *2 | PQHY-P216TSHMU-A *2 | PQHY-P240TSHMU-A *2 |
|---|---|---|---|---|---|---|---|---|
| | | | | With 2 PQHY-P72THMU-A *3 | With 1 PQHY-P72THMU-A and 1 PQHY-P96THMU-A *3 | With 2 PQHY-P96THMU-A *3 | With 1 PQHY-P96THMU-A and 1 PQHY-P120THMU-A *3 | With 2 PQHY-P120THMU-A *3 |
| | | | 460V | PQHY-P144YSHMU-A *2 | PQHY-P168YSHMU-A *2 | PQHY-P192YSHMU-A *2 | PQHY-P216YSHMU-A *2 | PQHY-P240YSHMU-A *2 |
| | | | | With 2 PQHY-P72YHMU-A *3 | With 1 PQHY-P72YHMU-A and 1 PQHY-P96YHMU-A *3 | With 2 PQHY-P96YHMU-A *3 | With 1 PQHY-P96YHMU-A and 1 PQHY-P120YHMU-A *3 | With 2 PQHY-P120YHMU-A *3 |
| Power source | | | | 208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz | | | | |
| Capacity (Nominal) *1 | Cooling | | BTU / h | 145,400 | 169,100 | 192,600 | 216,000 | 240,000 |
| | | | kW | 7.94 *3 | 9.73 *3 | 11.55 *3 | 13.50 *3 | 15.47 *3 |
| | | | A | 25.1 / 22.7 / 11.3 *3 | 30.5 / 27.6 / 13.7 *3 | 35.9 / 32.5 / 16.2 *3 | 41.6 / 37.6 / 18.8 *3 | 47.3 / 42.8 / 21.3 *3 |
| | Heating | | BTU / h | 160,000 | 188,000 | 216,000 | 243,000 | 270,000 |
| | | | kW | 7.89 *3 | 10.32 *3 | 12.74 *3 | 14.22 *3 | 15.70 *3 |
| | | | A | 24.3 / 22.0 / 11.0 *3 | 31.8 / 28.8 / 14.3 *3 | 39.3 / 35.5 / 17.7 *3 | 43.9 / 39.7 / 19.8 *3 | 48.4 / 43.8 / 21.8 *3 |
| Compressor | Operating Range | | | 11% to 100% | 10% to 100% | 9% to 100% | 8% to 100% | 7% to 100% |
| | Type x Quantity | | | Refer to PQHY-P72THMU-A and PQHY-P72YHMU-A Specifications on page 34 | Refer to PQHY-P72THMU-A / PQHY-P96THMU-A and PQHY-P72YHMU-A / PQHY-P96YJMU-A Specifications on page 34 | Refer to PQHY-P96THMU-A and PQHY-P96YHMU-A Specifications on page 34 | Refer to PQHY-P96THMU-A / PUHY-P120THMU-A and PQHY-P96YHMU-A / PQHY-P120YHMU-A Specifications on page 34 | Refer to PQHY-P120THMU-A and PQHY-P120YHMU-A (-BS) Specifications on page 34 |
| | Direct-drive INVERTER Motor output | | kW | | | | | |
| | Crankcase heater | | W | | | | | |
| | Lubricant | | | | | | | |
| Circulating Water | Water Flow Rate | | GPM (L/s) | | | | | |
| | Pressure Drop | | Ft. (psi) | | | | | |
| | Operation Volume Range | | GPM (L/m) | | | | | |
| Refrigerant | Type | | | | | | | |
| External finish | | | | | | | | |
| Dimensions | Height | | In. | | | | | |
| | Width | | In. | | | | | |
| | Depth | | In. | | | | | |
| Net Weight | | | Pounds | | | | | |
| Sound pressure level (measured in anechoic room) | | | dB(A) | 50.0 | 51.0 | 52.0 | 53.0 | 54.0 |
| Protection devices | High Pressure Protection | | | High pressure sensor, High pressure switch | | | | |
| | Compressor / Fan | | | Overheat protection / Thermal switch | | | | |
| | Inverter | | | Overheat and Overcurrent Protection | | | | |
| Refrigerant Pipe Dimensions | Low Pressure (Brazed) | | In. | 1-1/8 | | | | |
| | High Pressure (Brazed) | | In. | 1/2 | 5/8 | | | |
| Indoor unit connectable | Total capacity | | | 50 to 130% of outdoor unit capacity | | | | |
| | Model / Quantity | | | P06-P96 / 1 to 31 | P06-P96 / 1 to 36 | P06-P96 / 1 to 41 | P06-P96 / 2 to 46 | P06-P96 / 2 to 50 |
| Inlet Water Temperature Range | Cooling | | | *50 to 113° F | | | | |
| | Heating | | | *50 to 113° F | | | | |

Note: Rating Conditions

*1 Cooling: Indoor: 80° F (27°C) DB / 67° F (19°C) WB; Water Temperature: 85° F (29°C)
Heating: Indoor: 70° F (21°C) DB; Water Temperature: 70° F (21°C)

*2 Twinning Kit is required for combining two or three individual outdoor units in the field for PQRY-P-T(Y)SHMU combined systems.

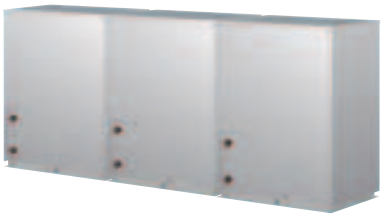
*3 Each individual outdoor unit requires a separate electrical connection. Reference electrical data for each individual outdoor unit.

* Inlet water temperature range can be extended down to 23˚ F by flipping dip switch 3-9 to on. When dip switch 3-9 is on a glycol solution should always be used to prevent freezing.

LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts. See our website for details on specific additional application installation coverage.

**Specifications are subject to change.**

## WY-Series Heat Pump Water-source Unit (continued)



| Model Name | | | 208/230V | PQHY-P264TSHMU-A *2 | PQHY-P288TSHMU-A *2 | PQHY-P312TSHMU-A *2 | PQHY-P336TSHMU-A *2 | PQHY-P360TSHMU-A *2 |
|---|---|---|---|---|---|---|---|---|
| | | | | With 1 PQHY-P72THMU-A and 2 PQHY-P96THMU-A *3 | With 3 PQHY-P96THMU-A *3 | With 2 PQHY-P96THMU-A and 1 PQHY-P120THMU-A *3 | With 1 PQHY-P96THMU-A and 2 PQHY-P120THMU-A *3 | With 3 PQHY-P120YHMU-A *3 |
| | | | 460V | PQHY-P264YHMU-A *2 | PQHY-P288YSHMU-A *2 | PQHY-P312YSHMU-A *2 | PQHY-P336YSHMU-A *2 | PQHY-P360YSHMU-A *2 |
| | | | | With 1 PQHY-P96YHMU-A and 2 PQHY-P96YHMU-A *3 | With 3 PQHY-P96YHMU-A *3 | With 2 PQHY-P96YHMU-A and 1 PQHY-P120YHMU-A *3 | With 1 PQHY-P96YHMU-A and 2 PQHY-P120YHMU-A *3 | With 3 PQHY-P120YHMU-A *3 |
| Power source | | | | 208 / 230V, 3-Phase, 60Hz / 460V, 3-Phase, 60Hz | | | | |
| Capacity (Nominal) *1 | Cooling | | BTU / h | 265,400 | 288,900 | 312,200 | 336,000 | 360,000 |
| | | | kW | 15.49 *3 | 17.32 *3 | 19.27 *3 | 21.23 *3 | 23.21 *3 |
| | | | A | 48.5 / 43.8 / 21.9 *3 | 53.8 / 48.7 / 24.3 *3 | 59.6 / 53.9 / 26.9 *3 | 65.2 / 59.0 / 29.4 *3 | 70.9 / 64.1 / 32.0 *3 |
| | Heating | | BTU / h | 296,000 | 324,000 | 351,000 | 378,000 | 405,000 |
| | | | kW | 16.68 *3 | 19.10 *3 | 20.58 *3 | 22.07 *3 | 23.55 *3 |
| | | | A | 51.4 / 46.5 / 23.2 *3 | 58.9 / 53.3 / 26.6 *3 | 63.5 / 57.4 / 28.7 *3 | 68.1 / 61.6 / 30.7 *3 | 72.6 / 65.7 / 32.8 *3 |
| Compressor | Operating Range | | | 7% to 100% | 6% to 100% | 6% to 100% | 5% to 100% | 5% to 100% |
| | Type x Quantity | | | Refer to PQHY-P72THMU-A / PQHY-P96THMU-A and PQHY-P72YHMU-A / PQHY-P96YHMU-A Specifications on page 34 | Refer to PQHY-P96THMU-A and PQHY-P96YHMU-A Specifications on page 34 | Refer to PQHY-P96THMU-A / PQHY-P120THMU-A and PQHY-P96YHMU-A / PQHY-P120YHMU-A Specifications on page 34 | Refer to PQHY-P96THMU-A / PQHY-P120THMU-A and PQHY-P96YHMU-A / PQHY-P120YHMU-A Specifications on page 34 | Refer to PQHY-P120THMU-A and PQHY-P120YHMU-A Specifications on page 34 |
| | Direct-drive INVERTER Motor output | | kW | | | | | |
| | Crankcase heater | | W | | | | | |
| | Lubricant | | | | | | | |
| Circulation Water | Water Flow Rate | | GPM (L/s) | | | | | |
| | Pressure Drop | | Ft. (psi) | | | | | |
| | Operation Volume Range | | GPM (L/m) | | | | | |
| Refrigerant | Type | | | | | | | |
| External finish | | | | | | | | |
| Dimensions | Height | | In. | | | | | |
| | Width | | In. | | | | | |
| | Depth | | In. | | | | | |
| Net Weight | | | Pounds | | | | | |
| Sound pressure level (measured in anechoic room) | | | dB(A) | 53.0 | 54.0 | 54.5 | 55.0 | 56.0 |
| Protection devices | High Pressure Protection | | | High pressure sensor, High pressure switch | | | | |
| | Compressor / Fan | | | Overheat protection / Thermal switch | | | | |
| | Inverter | | | Overheat and Overcurrent Protection | | | | |
| Refrigerant Pipe Dimensions | Low Pressure (Brazed) | | In. | 1-3/8 | | | 1-5/8 | |
| | High Pressure (Brazed) | | In. | 3/4 | | | | |
| Indoor unit connectable | Total capacity | | | 50 to 130% of outdoor unit capacity | | | | |
| | Model / Quantity | | | P06-P96 / 2 to 50 | | | | |
| Inlet Water Temperature Range | Cooling | | | *50 to 113° F | | | | |
| | Heating | | | *50 to 113° F | | | | |

Note: Rating Conditions

*1 Cooling: Indoor: 80° F (27°C) DB / 67° F (19°C) WB; Water Temperature: 85° F (29°C)
Heating: Indoor: 70° F (21°C) DB; Water Temperature: 70° F (21°C)

*2 Twinning Kit is required for combining two or three individual outdoor units in the field for PQRY-P-T(Y)SHMU combined systems.

*3 Each individual outdoor unit requires a separate electrical connection. Reference electrical data for each individual outdoor unit.

* Inlet water temperature range can be extended down to 23˚ F by flipping dip switch 3-9 to on. When dip switch 3-9 is on a glycol solution should always be used to prevent freezing.

LIMITED WARRANTY | Seven-year warranty on compressor. One-year warranty on parts. See our website for details on specific additional application installation coverage.

**Specifications are subject to change.**

# Hot and cold water, quickly and efficiently.

## PWFY: Hydronic Heat Exchanger

The PWFY Hydronic Heat Exchanger is available in two configurations, the HEX (-AU) and the Booster (-BU). Each provides unique solutions to incorporate into an existing VRF system for an efficient means to heat and cool water.

*PWFY-P72NMU-E-AU (Hex)*

*PWFY-P36NMU-E-BU (Booster)*

**Available sizes: 36,000 & 72,000 Btu/h**

The PWFY Hydronic Heat Exchanger is a closed–circuit water heater that works with the Y-Series and R2-Series outdoor units. The system can produce cool water to 50˚ F and heat water up to 115˚ F and is available in capacities of 36,000 and 72,000 Btu/h. The Booster unit can produce hot water up to 160˚ F and is available in a capacity of 36,000 Btuh.

## HEX unit (-AU)
### (Compatible with the Y- and R2-Series)

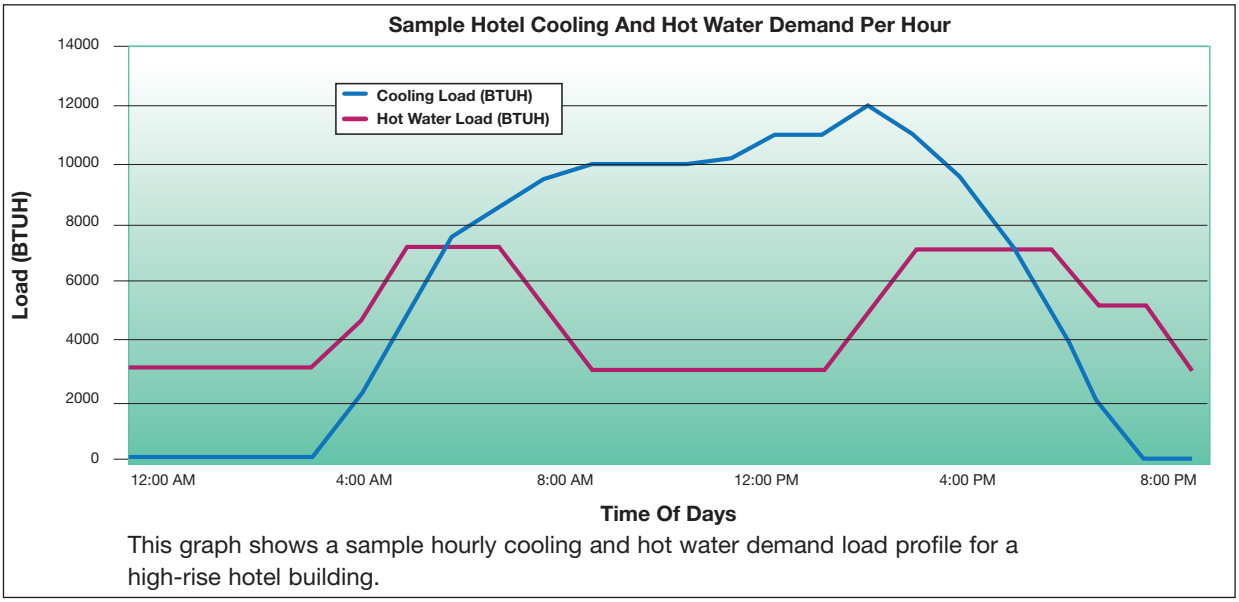
- Heats water to 115° F
  - Hydronic heat exchanger transfers energy from refrigerant to water
  - Can be used to recover waste heat from cooling operation to water when combined with the R2 system, resulting in large energy savings
  - Applications include radiant heating, snow melt, reheating air, preheating hot water and more
- Cools water to 50° F
  - Can be used for cooling outside air, cooling pool water, misting stations, process cooling, drinking water and more
- Unit is not suitable for direct potable water flow
- Connectable only with CITY MULTI modular R2, Y, WR2 and WY systems
- Y-strainer included
- Uses PAR-W21MAA to control operation

## Booster unit (-BU)
### (Compatible with R2-Series)

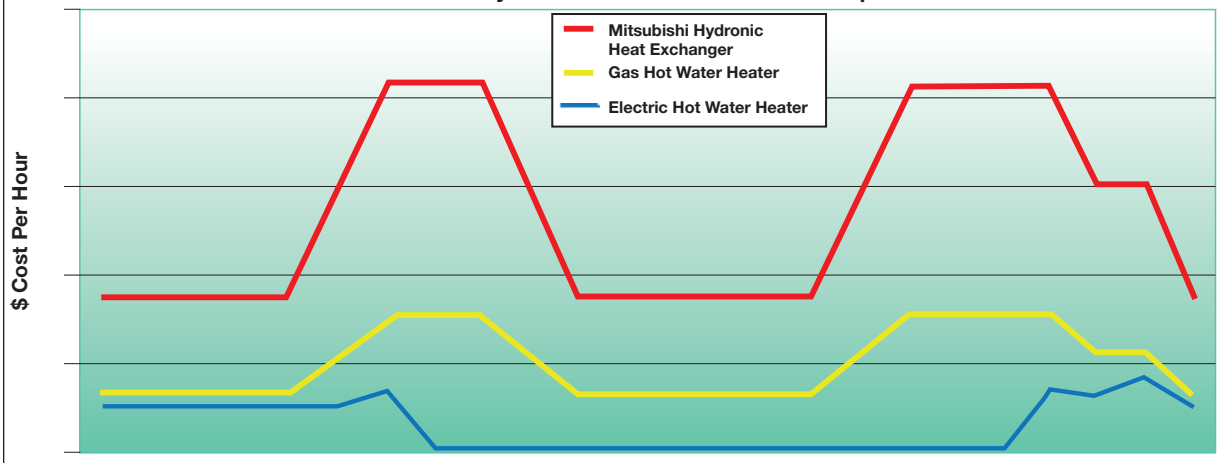
- Heats water to 160° F
- Hydronic heat exchanger transfers energy from refrigerant to water
- Can be used to transfer waste heat from cooling operation to water, resulting in large energy savings
- Applications include radiant heating, hot water preheating, melting snow, reheating air, warming pools, and more
- Unit is not suitable for direct potable water flow
- Includes R134A compressor circuit for boosting water temperature
- Connectable only with modular CITY MULTI R2 and WR2 systems
- Y-strainer included
- Uses PAR-W21MAA to control operation

The Hydronic Heat Exchanger offers the flexibility to meet the needs of almost any commercial application. The ability of the HEX to heat water up to 115° F makes it ideal for in–floor radiant heating, snow melt, domestic hot water preheating, and hot water preheating. The ability of the Booster to heat water up to 160°F makes it ideal for hot water heating for hydronic coils, perimeter radiant heat, and commercial kitchen domestic hot water. Both systems create hot water efficiently either through the use of the INVERTER drive compressor or through reclaimation of waste heat from the cooling cycle.

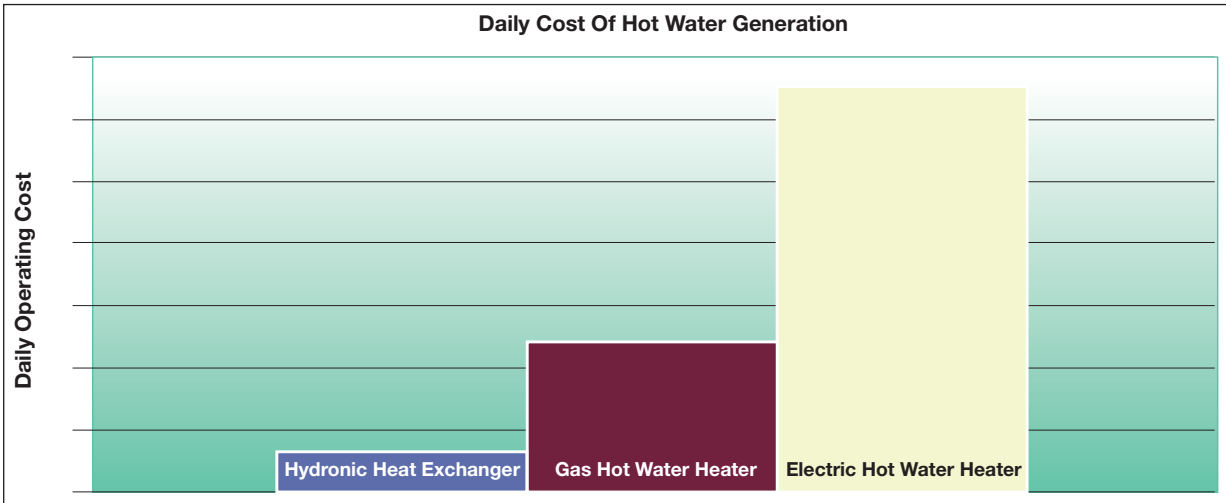
*PAR-W21MAA*




This graph shows a sample hourly cooling and hot water demand load profile for a high-rise hotel building.


Hourly Hot Water Generation Cost Comparison
Mitsubishi Hydronic Heat Exchanger
Gas Hot Water Heater
Electric Hot Water Heater
$ Cost Per Hour
Time Of Day

This graph shows the cost required to generate the hot water to meet the demand shown in the first graph for various cooling and heating system types. Between 6:00 AM and 5:00 PM, the cooling demand exceeds the hot water demand. The PFY generates hot water from waste heat used to cool, making the hot water generation free. When the system is not recovering waste heat, it uses the efficiency of the CITY MULTI system to meet the hot water demand. An electric hot water heater or a gas hot water heater has to constantly use electricity and gas to meet the hot water demand.


Daily Cost Of Hot Water Generation
Daily Operating Cost
Hydronic Heat Exchanger
Gas Hot Water Heater
Electric Hot Water Heater

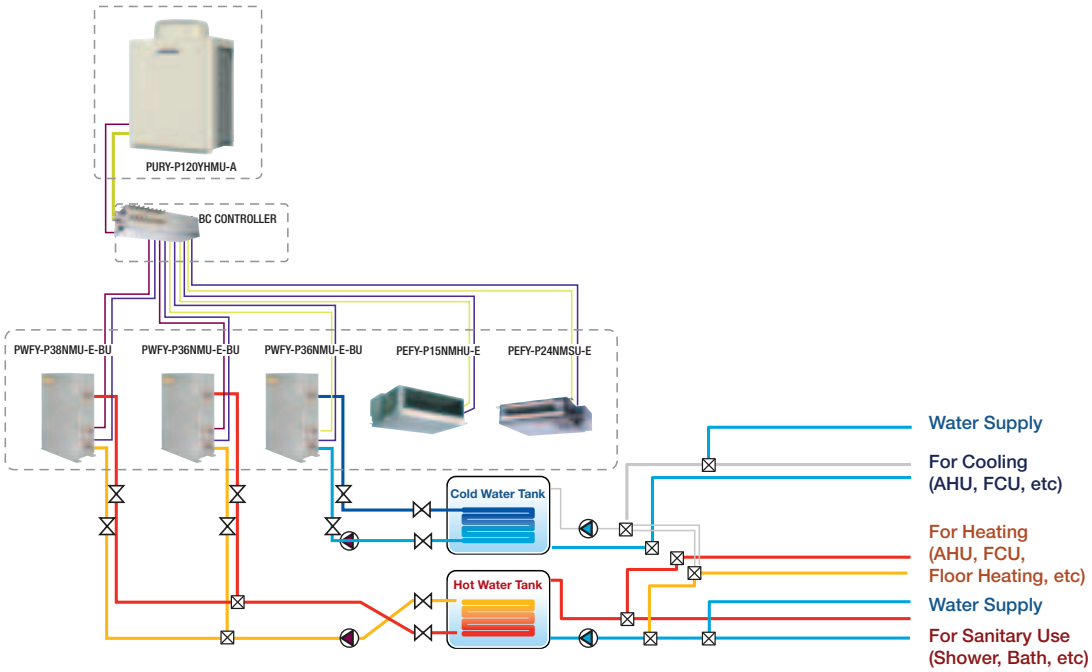
This graph shows that the daily cost of using Mitsubishi Electric's Hydronic Heat Exchanger PWFY is four times less than that of a gas hot water heater and ten times less than that of an electric hot water heater.

# PWFY-P-NMU-E-AU/BU SPECIFICATIONS

| Model Name | | | | PWFY-P36NMU-E-AU | PWFY-P72NMU-E-AU | PWFY-P36NMU-E-BU |
|---|---|---|---|---|---|---|
| Power Source | | | | 208/230V, 1-phase, 60Hz | | |
| Cooling Capacity *1 | | | Btu/h | 36,200 | 72,000 | - |
| Heating Capacity *1 | | | Btu/h | 39,900 | 79,800 | 39,900 |
| Power Consumption | Cooling | | W | 15 | | N/A |
| | Heating | | W | 15 | | 2,480 |
| Current | Cooling | | A | 0.072 / 0.065 | | N/A |
| | Heating | | A | 0.072 / 0.065 | | 12.30 /11.12 |
| External Finish | | | | Galvanized-steel Sheet | | |
| Dimensions | Height | | In. | 31-1/2 | | |
| | Width | | In. | 17-3/4 | | |
| | Depth | | In. | 11-13/16 | | |
| Net Weight | Unit | | Pounds | 78 | 84 | 133 |
| Operating Inlet Water Temp. Range | | Cooling | | 50° F to 95° F | | - |
| | | Heating | | 50° F to 105° F | | 50° F to 160° F |
| Circulating Water Operation Volume Range | | | GPM (L/m) | 3-9 (10-35) | 5-18 (20-72) | 3-9 (10-35) |
| Circulating Water Design Pressure | | | MPa (psi) | 1 (145) | | |
| Water Piping Dimensions | Inlet | | In. | 3/4 FPT | 1 FPT | 3/4 FPT |
| | Outlet | | In. | 3/4 FPT | 1 FPT | 3/4 FPT |
| Refrigerant Pipe Dimensions | Low Pressure (Brazed) | | In. | 5/8 | 3/4 | 5/8 |
| | High Pressure (Brazed) | | In. | 3/8 | 3/8 | 3/8 |
| Drainpipe Dimensions (O.D.) | | | In. | 1-1/4 | | |
| Sound Pressure Levels | | | dB(A) | 29 | | 44 |
| Connectable Outdoor Units | | | | PURY-P72~240T/Y(S)HMU (-BS),<br>PURY-P72~288T/Y(S)JMU (-BS),<br>PQRY-P72~240T/Y(S)HMU (-BS),<br>PUHY-P72~P360T/Y(S)HMU (-BS),<br>PUHY-P72~360T/Y(S)JMU (-BS),<br>PQHY-P72~360T/Y(S)HMU (-BS) | | PURY-P72~240T/Y(S)HMU (-BS),<br>PURY-P72~288T/Y(S)JMU (-BS),<br>PQRY-P72~240T/Y(S)HMU (-BS) |

*1 Cooling/Heating Capacity indicates the maximum value at operation under the following conditions:
Cooling: Inlet water temperature : 74° F; Outdoor: 95° F (35°C) DB; Water flow rate: 9.25 GPM
Heating: Inlet water temperature: 86° F (30°C); Outdoor: 47° F (8°C) DB / 43° F (6°C) WB; Water flow rate: 9.25 GPM
*2 Airflow rate/sound pressure levels are at Low-Mid1-Mid2-Hi, Low-Mid-Hi, or Low-Hi
Ventilation Air: Providing sufficient ventilation air is an important part of very building design. ASHRAE Standard 62 provides the minimum air requirements. Also check local codes.

**Specifications are subject to change.**



# Multiple choices for indoor units

In today's modern building practices, interior mechanical components are designed for ultimate comfort and functionality. Aesthetics are also important. CITY MULTI VRF systems offer many sleek styles of ductless or ducted indoor units for various applications. Each indoor unit gives you ultimate in zoning flexibility in each space. All are compatible with R2-Series, Y-Series, H2i™ Y-Series, W-Series and S-Series outdoor units.

## PKFY: Wall-mounted

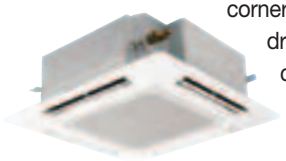
The PKFY wall-mounted indoor unit has a smooth front and lighter color finish and is very quiet, with sound ratings as low as 32 dB(A). PKFY models are available in capacities of 6,000, 8,000, 12,000, 15,000, 18,000, 24,000 and 30,000 Btu/h. This style of indoor unit is well-suited for hotels, assisted living facilities, offices, residences and other applications where wall space is available.

## PCFY: Ceiling-suspended

THE PCFY is a ceiling-suspended indoor unit. It is available in capacities of 15,000, 24,000, 30,000 and 36,000 Btu/h. The PCFY's auto vane swings distributes the conditioned air throughout the room. This model, with an updated smooth finish and lighter color, is ideal for restaurants, classrooms, and stores.

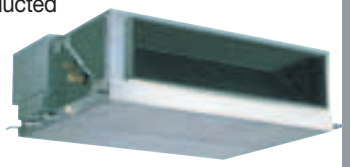
## PLFY: Ceiling-recessed cassette with up to four-way airflow

The PLFY is a ceiling-recessed type indoor unit with a two-, three-, or four-way airflow option, it is available in two styles. It provides discreet individual room control and four fan speed settings. It can be installed in a lay-in tile or drywall ceiling and can be serviced via an access point in the corner pocket panel at each of its four corners. The PLFY-NBMU unit has a built-in, drain-lift mechanism with 33 inches of condensation lift. It features four-way independent vane motor control, a wider air stream than previous models and an optional i-see™ sensor to measure floor temperature in real time for better temperature management.



PLFY-NBMU models are available in capacities of 12,000, 15,000, 18,000, 20,000, 24,000 and 36,000 Btu/h. PLFY-NCMU units are specifically designed to fit inside of a ceiling grid for added installation and design convenience. PLFY-NCMU models are available in capacities of 8,000, 12,000 and 15,000 Btu/h. PLFY models are well-suited for office buildings, school classrooms, computer server rooms, and other applications where at least 12 inches of space is available above the ceiling.

## PEFY: Ceiling-concealed ducted



The PEFY is a concealed-type, ducted indoor unit available in standard, low profile, and alternate high–static styles. It is installed above the ceiling to allow multiple outlets to be ducted from it. The compact design allows maximum flexibility for air conditioning hard-to-reach zones or for zones that are larger in size. PEFY units are extremely quiet. Capacities range from 6,000 to 96,000 Btu/h. This style of indoor unit is well-suited for office buildings, schools, hotels, assisted-living facilities, residences and other applications where ceiling space is available and the most discreet mechanical system is desired.

## PMFY: Ceiling-recessed cassette with one-way airflow

The PMFY is a ductless, one-way, ceiling-recessed cassette indoor unit that can be connected to ventilation air. This unit is easy to install and is offered in 6,000, 8,000, 12,000 and 15,000 Btu/H capacities. The PMFY model is designed for use in areas that cannot support duct work or lack sufficient space to support wall-mounted units.

## PFFY: Floor-standing

The PFFY floor-mounted model is available as an exposed or conceal indoor unit. These two styles are available in capacities of 6,000, 8,000, 12,000, 15,000, 18,000 and 24,000 Btu/h. The PFFY-NEMU requires no finish work and is perfect for any application, especially schools, office buildings, and hotels. The PFFY-NRMU is a concealed floor-mounted unit that practically disappears in the room.

**Floor-standing Exposed PFFY-NEMU**

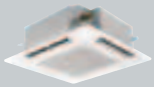
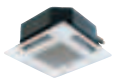
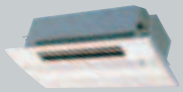
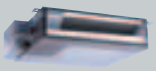
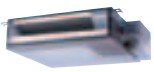
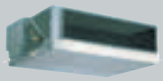
**Floor-standing Concealed PFFY-NRMU**

## PVFY: Vertical-concealed

The PVFY vertical air handler is designed for closet or attic applications. The side drain pan makes it possible to use in a horizontal, left facing, position. With all the components, including a linear expansion valve (LEV) and controls pre-mounted within the cabinet for easy installation, this unit is ideally suited for use in retrofit and new building applications. Its available in capacities of 12,000, 18,000, 24,000, 30,000, 36,000, 48,000 and 54,000 Btu/h.

# Customize your CITY MULTI building comfort solution

All models are quiet, easy to maintain and provide the ultimate in comfort. The chart below gives the capacity size for each model.

| Capacity Code | Nominal Btu/h | 6,000 | 8,000 | 12,000 | 15,000 | 18,000 | 24,000 | 27,000 | 30,000 | 36,000 | 48,000 | 54,000 | 72,000 | 96,000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Wall-mounted**<br>PKFY-P-N*MU-E |  | | ● | ● | ● | ● | ● | | ● | | | | | |
| **Ceiling-recessed Cassette**<br>PLFY-P-NBMU-E |  | | | ● | ● | ● | ● | | ● | ● | | | | |
| **Ceiling-recessed Cassette**<br>PLFY-P-NCMU-E |  | | ● | ● | ● | | | | | | | | | |
| **Ceiling-recessed Cassette**<br>PMFY-P-NBMU-E |  | ● | ● | ● | ● | | | | | | | | | |
| **Ceiling-suspended**<br>PCFY-P-NKMU-E | | | | | ● | | ● | | ● | ● | | | | |
| **Ceiling-concealed (ducted)**<br>PEFY-P-NMAU |  | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | |
| **Ceiling-concealed (ducted low-profile)**<br>PEFY-P-NMSU-E |  | ● | ● | ● | ● | ● | ● | | | | | | | |
| **Ceiling concealed (ducted alternative high-static option)**<br>PEFY-P-NMHU-E |  | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **Floor-standing (exposed/concealed)**<br>PFFY-P-NEMU/NRMU-E | | ● | ● | ● | ● | ● | ● | | | | | | | |
| **Vertical-concealed**<br>PVFY-P-E00A | | | | ● | | ● | ● | | ● | ● | ● | ● | | |

# Elegant design and compact dimensions ideal for offices, classrooms, and residential uses.

**Capacity range: 6,000 to 30,000 Btu/h**

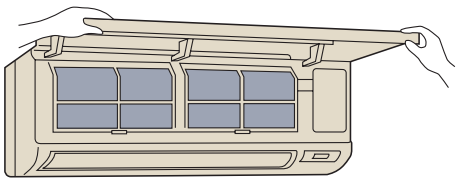
## A wide selection for your design and performance needs

Whatever the size or shape of your room, there is a Mitsubishi Electric PKFY unit that is just right, delivering the style and performance you demand and deserve. PKFY units mount high on the wall and blend beautifully into any space. They are compact, lightweight and feature a built–in wireless sensor for use with an optional wireless remote controller. In addition, they are extremely quiet, with some of the lowest sound ratings available. When it comes to comfort, the PKFY's auto-vane and auto fan speed (on models P12, P15, P18) features deliver optimal air distribution and uniform temperatures throughout your space. All this performance and design flexibility comes in a unit that is remarkably easy to install and maintain. The template and back mounting plate shipped with each unit make installation a snap.

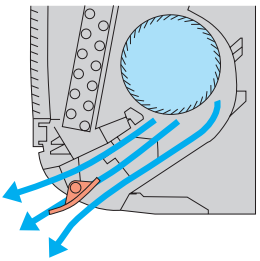
## Front grille opens for easy filter cleaning

The front grille hinges open easily–no tools are needed to gain quick access to the filter. The filter can be removed and cleaned as needed.

**Front grille opens for filter access**



## Operation is among the quietest available



The unit incorporates a random-pitch fan to assure quiet operation. The optimal design of the airflow passage features a small fan diameter to allow for a compact installation. Thanks to practical casing configuration, airflow generated by the fan is distributed uniformly. This design also suppresses condensation.

## Swing vane

A user–selectable vane swing setting with PAR-21MAA and PAR-F27MEA controllers enhances air distribution in the conditioned space.

## Five-way piping provides flexibility in selecting installation sites

Refrigerant and drain piping can be connected from the rear, right, base, or left of the unit, providing much greater flexibility for piping and selecting an installation site.

# PKFY-P-N*MU-E SPECIFICATIONS

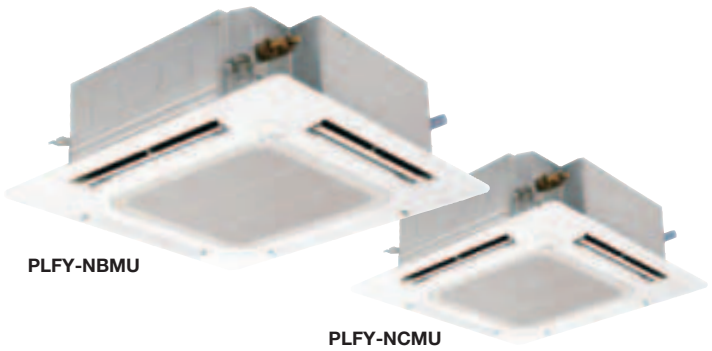
| Model Name | | | PKFY-06NBMU-E | PKFY-P08NBMU-E | PKFY-P12NHMU-E | PKFY-P15NHMU-E | PKFY-P18NHMU-E | PKFY-P24NKMU-E | PKFY-P30NKMU-E |
|---|---|---|---|---|---|---|---|---|---|
| Power Source | | | 208 / 230V, 1 Phase, 60Hz | | | | | | |
| Cooling Capacity | | Btu/h *1 | 6,000 | 8,000 | 12,000 | 15,000 | 18,000 | 24,000 | 30,000 |
| Heating Capacity | | Btu/h *1 | 6,700 | 9,000 | 13,500 | 17,000 | 20,000 | 27,000 | 34,000 |
| Power Consumption | Cooling | W | 30 | | | | | 40 | 60 |
| | Heating | W | 30 | | | | | 40 | 60 |
| Current | Cooling | A | 0.15 | | 0.30 | | | 0.29 | 0.43 |
| | Heating | A | 0.15 | | 0.30 | | | 0.29 | 0.43 |
| External Finish | Munsell No. | | 1.0Y 9.2 / 0.2 | | | | | | |
| Dimensions | Height | Inches | 11-5/8 | | | | | 14-3/8 | |
| | Width | Inches | 32-1/8 | | 35-3/8 | | | 46-1/16 | |
| | Depth | Inches | 8-7/8 | | 9-13/16 | | | 11-5/8 | |
| Net Weight | Unit | Pounds | 22 | | 29 | | | 46 | |
| Heat Exchanger | | | Cross Fin (Aluminum Plate Fin and Copper Tube) | | | | | | |
| Fan | Type x quantity | | Line Flow Fan x 1 | | | | | | |
| | Airflow Rate *2 | CFM | 170-180-200-210 | | 320-355-390 | 320-370-405 | 320-370-425 | 570-710 | 710-850 |
| | Motor Type | | Single-phase Induction Motor | | Direct-driven DC Motor | | | | |
| | Motor Output | W | 8 | | 30 | | | 56 | |
| Air Filter | | | Polypropylene Honeycomb | | | | | | |
| Refrigerant Pipe Dimensions | Low Pressure (Flare) | Inches | 1/2 | | | | | 5/8 | |
| | High Pressure (Flare) | Inches | 1/4 | | | | | 3/8 | |
| Drain Pipe Dimension (I.D.) | | Inches | 5/8 | | | | | | |
| Sound Pressure Levels *2 | Lo-Mid1-Mid2-Hi | dB(A) | 32-33-35-36 | | 34-38-42 | | 36-41-45 | 39-45 | 43-49 |

*1 Cooling/Heating Capacity indicates the maximum value at operation under the following conditions:
Cooling: Indoor: 80° F (27°C) DB / 67° F (19°C) WB; Outdoor 95° F (35°C) DB
Heating: Indoor: 70° F (21°C) DB; Outdoor: 45° F (7°C) DB / 43° F (6°C) WB

*2 Airflow rate/sound pressure levels are at Low-Mid1-Mid2-Hi, Low-Mid-Hi, or Low-Hi
Ventilation Air: Providing sufficient ventilation air is an important part of very building design. ASHRAE Standard 62 provides the minimum air requirements. Also check local codes.

**Specifications are subject to change.**

# Perfect airflow to meet your needs with four-way control.



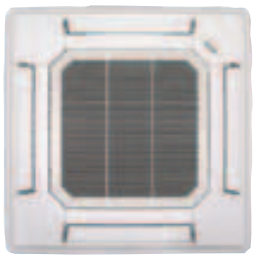
PLFY-NBMU

PLFY-NCMU

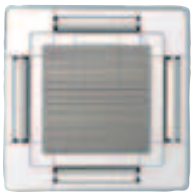
**Capacity range: 12,000 – 36,000 Btu/h**

The PLFY-Series indoor unit offers unequaled flexibility of installation. This compact ceiling-recessed design makes it easy to install and operate. Its exceptional performance provides excellent air coverage. Two styles are available.

PLFY-P-NBMU



PLFY-P-NCMU



## High performance and versatility

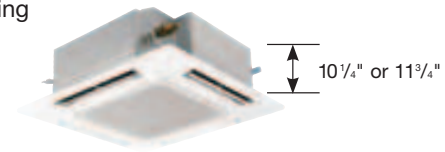
The PLFY looks great and works beautifully. The four-way cassette-type unit is compact and recesses easily into a ceiling space–so all you see is an attractive, flush-mounted grille. Beneath that elegant exterior is a powerful, high-performance machine with a built-in drain lift-up mechanism. The fan is engineered to provide optimum air distribution with minimal sound. Both styles can bring outside air into your space. The PLFY-NBMU can also branch over to air condition an adjacent room. The PLFY-NCMU unit is specifically designed to fit within a ceiling grid for ease of installation.

## Quiet operation

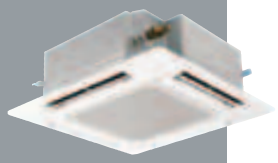
This powerful indoor unit is whisper-quiet, down to 29 dB(A) for the PLFY-NCMU and 27 dB(A) for the PLFY-NBMU.

## Ceiling applications

The PLFY-NBMU has a unit height of only 10-1/4" or 11-3/4", depending on the model. It provides great looking installations in low-ceiling areas with very limited space.

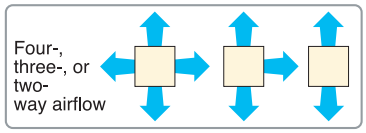


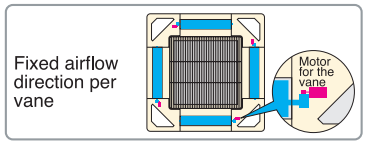

**At only 8-3/16" in height and only 22-7/16 x 22/7/16" in width, the PLFY-NCMU makes accessing even the tightest of ceiling installations a possibility. The NCMU's grille is color-matched with the NBMU and blends in well with white drop ceiling tiles.**



## Customize the airflow pattern to meet your needs

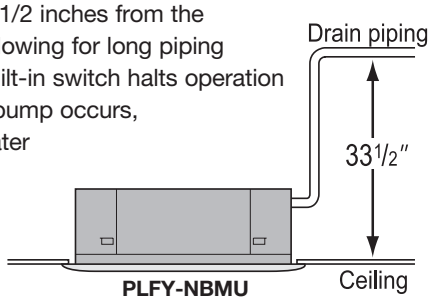
The different airflow patterns provide the best solution for a variety of room layouts and air-conditioning requirements. For extra versatility, you can select from two-, three-, or four-way airflow.




## Built-in condensate lift mechanism

The drain piping of the PLFY-NBMU can be positioned anywhere up to 33-1/2 inches from the ceiling's surface, allowing for long piping and versatility. A built-in switch halts operation if an error with the pump occurs, ensuring that no water leaks from the unit.




**The PLFY-NCMU model has a built-in pump that lifts condensation 20 inches from the ceiling's surface. The unit recognizes when there is a pump failure and safeguards against leaks.**

## Corner-pocket design simplifies maintenance and installation

PLFY-NBMU allows access through the pockets equipped on each of four corners of the grille to complete installation, maintenance work, and height adjustment. The PLFY-NCMU unit requires an access panel for maintenance work.

## Easy maintenance, long-life filter

The washable filter provides about 2,500 hours of use in a normal office environment before cleaning is needed. The PLFY-NBMU is also available with an optional multi-function casement that allows for additional ventilation air and better filtration.

# ADDITIONAL FEATURES FOR PLFY-NBMU MODELS

## Wide air stream

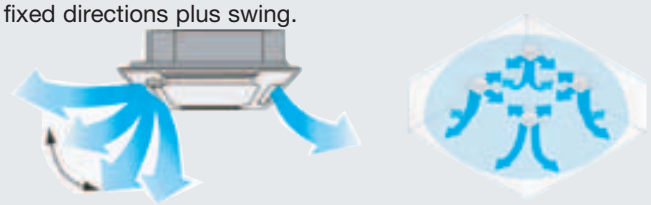
Long air outlets on the PLFY-NBMU unit deliver wide air streams for improved air distribution and energy savings. This feature means quiet air delivery with fewer drafts and great overall cooling and heating coverage.

## Auto Wave airflow feature
(Heating Mode)

In the Heating mode on the PLFY-NBMU, each air outlet vane operates independently, distributing warm air in multiple directions for better room heating.

## Independent vane motor control

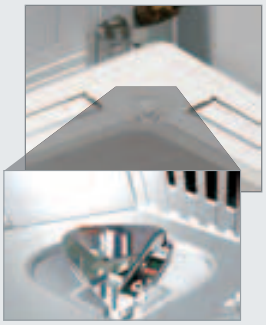
Each of the four vanes on the PLFY-NBMU can be set by the wired remote controller to operate independently to match the room layout. Specific vane settings include five fixed directions plus swing.



## The i-see™ sensor accessory

In addition to the return air temperature, the PLFY-NBMU four-way ceiling cassette with the field–installed i-see sensor measures the average floor temperature, observing the room vertically for better management of "sensible" temperature (temperature felt by occupant). The i-see sensor measures the infrared rays generated from the surrounding wall and floor surface at an angle of 360°. This infrared ray energy is converted into a temperature value. The i-see sensor rotates 90° slowly – in five-second intervals – for correct measurement of temperature to cover the full floor space.

i-see Sensor



i-see sensor detail

## Auto fan speed feature

The PLFY-NBMU unit offers a choice of four set fan speeds, or auto fan speed, to ensure for quick achievement of room temperature target. Auto fan speed mode allows the fan to adjust its speed based on the degree of differential between set point and room temperature.

Low → Mid1 → Mid2 → High → Auto

# PLFY-P-NBMU-E SPECIFICATIONS

| Model Name | | | PLFY-P12NBMU-E | PLFY-P15NBMU-E | PLFY-P18NBMU-E |
|---|---|---|---|---|---|
| Power Source | | | 208/230V, 1-phase, 60Hz | | |
| Cooling Capacity | | Btu/h *1 | 12,000 | 15,000 | 18,000 |
| Heating Capacity | | Btu/h *1 | 13,500 | 17,000 | 20,000 |
| Power Consumption | Cooling | W | 30 | 40 | 50 |
| | Heating | W | 20 | 30 | 40 |
| Current | Cooling | A | 0.22 | 0.29 | 0.36 |
| | Heating | A | 0.14 | 0.22 | 0.29 |
| External Finish Color (Munsell No.) | | | Grille 6.4Y 8.9/0.4 | | |
| Dimensions | Height | Inches | 10-3/16 | | |
| | Width | Inches | 33-3/32 | | |
| | Depth | Inches | 33-3/32 | | |
| Net Weight *2 | Unit/Panel | Pounds | 49/13 | | 51/13 |
| Heat Exchanger | | | Cross Fin (Aluminum Plate Fin and Copper Tube) | | |
| Fan | Type x Quantity | | Turbo Fan x 1 | | |
| | Airflow Rate *3 | CFM | 388-424-459-494 | 424-459-494-565 | 494-530-565-636 |
| | Motor Type | | DC Motor | | |
| | Motor Output | kW | 0.050 | | |
| Air Filter | | | Polypropylene Honeycomb | | |
| Refrigerant Pipe Dimensions | Low Pressure (Flare) | Inches | 1/2 | | |
| | High Pressure (Flare) | Inches | 1/4 | | |
| Condensate Lift Mechanism (Standard) | | Inches | 33-1/2 | | |
| Drain pipe Dimension (O.D.) | | Inches | 1-1/4 | | |
| Sound Pressure Levels (As Measured in an Anechoic Room)*3 | (Low-Mid1-Mid2-High) | dB(A) | 27-28-29-31 | 27-28-30-31 | 28-29-30-32 |

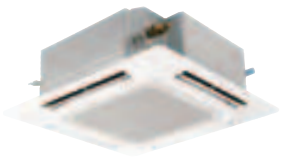
| Model Name | | | PLFY-P24NBMU-E | PLFY-P30NBMU-E | PLFY-P36NBMU-E |
|---|---|---|---|---|---|
| Power Source | | | 208/230, 1-phase, 60Hz | | |
| Cooling Capacity | | Btu/h *1 | 24,000 | 30,000 | 36,000 |
| Heating Capacity | | Btu/h *1 | 27,000 | 34,000 | 40,000 |
| Power Consumption | Cooling | W | 60 | 70 | 160 |
| | Heating | W | 50 | 60 | 150 |
| Current | Cooling | A | 0.43 | 0.51 | 1.07 |
| | Heating | A | 0.36 | 0.43 | 1.00 |
| External Finish Color (Munsell No.) | | | Grille 6.4Y 8.9/0.4 | | |
| Dimensions | Height | Inches | 10-3/16 | | 11-3/4 |
| | Width | Inches | 33-3/32 | | |
| | Depth | Inches | 33-3/32 | | |
| Net Weight *2 | Unit/Panel | Pounds | 51/13 | | 60/13 |
| Heat Exchanger | | | Cross Fin (Aluminum Plate Fin and Copper Tube) | | |
| Fan | Type x Quantity | | Turbo Fan x 1 | | |
| | Airflow Rate *3 | CFM | 530-565-636-706 | 565-636-706-777 | 777-883-989-1,059 |
| | Motor Type | | DC Motor | | |
| | Motor Output | kW | 0.050 | | 0.120 |
| Air Filter | | | Polypropylene Honeycomb | | |
| Refrigerant Pipe Dimensions | Low Pressure (Flare) | Inches | 5/8 | | |
| | High Pressure (Flare) | Inches | 3/8 | | |
| Condensate Lift Mechanism (Standard) | | Inches | 33-1/2 | | |
| Drain pipe Dimension (O.D.) | | Inches | 1-1/4 | | |
| Sound Pressure Levels (As Measured in an Anechoic Room)*3 | (Low-Mid1-Mid2-High) | dB(A) | 28-30-32-34 | 30-32-35-37 | 35-38-41-43 |

Note:
*1 Cooling / Heating capacity indicates the maximum value at operation under the following conditions:
Cooling: Indoor: 80˚F (27˚C) DB / 67˚F (19˚C) WB; Outdoor: 95˚F (35˚C) DB
Heating: Indoor: 70˚F (21˚C) DB; Outdoor: 47˚F (8˚C) DB / 43˚F (6˚C) WB
*2 Net weight is shown for unit / grille
*3 Airflow rate / sound pressure levels are at (Low-Mid1-Mid2-High).

Ventilation Air: Providing sufficient ventilation air is an important part of every building design. ASHRAE Standard 62 provides the minimum ventilation air requirements. Also check local codes.

**Specifications are subject to change.**

# PLFY-P-NCMU-E SPECIFICATIONS



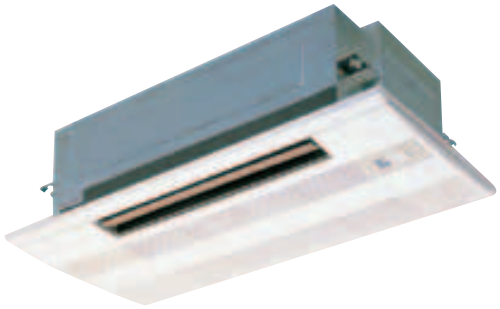
| Model Name | | | PLFY-P08NCMU-E | PLFY-P12NCMU-E | PLFY-P15NCMU-E |
|---|---|---|---|---|---|
| Power Source | | | 208 230V, 1-phase, 60Hz | | |
| Cooling Capacity | | Btu/h *1 | 8,000 | 12,000 | 15,000 |
| Heating Capacity | | Btu/h *1 | 9,000 | 13,500 | 17,000 |
| Power Consumption | Cooling | W | 50 | 60 | |
| | Heating | W | 50 | 60 | |
| Current | Cooling | A | 0.23 | 0.28 | |
| | Heating | A | 0.23 | 0.28 | |
| External Finish (Munsell No.) | | | Grille: White (6.4Y 8.9/0.4) | | |
| Dimensions | Height | Inches | 8-3/16 | | |
| | Width | Inches | 22-7/16 | | |
| | Depth | Inches | 22-7/16 | | |
| Net Weight *2 | Unit/Panel | Pounds | 34/7 | 37/7 | |
| Heat Exchanger | | | Cross Fin (Aluminum Plate Fin and Copper Tube) | | |
| Fan | Type x Quantity | | Turbo Fan x 1 | | |
| | Airflow Rate *3 | CFM | 280-320-350 | 320-350-390 | |
| | Motor Type | | Single-phase Induction Motor | | |
| | Motor Output | kW | 0.015 | 0.020 | |
| Air Filter | | | Polypropylene Honeycomb | | |
| Refrigerant Pipe Dimensions | Low Pressure (Flare) | Inches | 1/2 | | |
| | High Pressure (Flare) | Inches | 1/4 | | |
| Condensate Lift Mechanism (Standard) | | Inches | 19-11/16 | | |
| Drain pipe Dimension (O.D.) | | Inches | 1-1/4 | | |
| Sound Pressure Levels (As Measured in an Anechoic Room) *3 | (Low-Mid-High) | dB(A) | 29-32-38 | 30-34-39 | 31-35-40 |

Note:
*1 Cooling / Heating capacity indicates the maximum value at operation under the following conditions:
Cooling: Indoor: 80˚F (27˚C) DB / 67˚F (19˚C) WB; Outdoor: 95˚F (35˚C) DB
Heating: Indoor: 70˚F (21˚C) DB; Outdoor: 47˚F (8˚C) DB / 43˚F (6˚C) WB
*2 Net weight is shown for unit / grille
*3 Airflow rate / sound pressure levels are at (Low-Mid-High).

Ventilation Air: Providing sufficient ventilation air is an important part of every building design. ASHRAE Standard 62 provides the minimum ventilation air requirements. Also check local codes.

**Specifications are subject to change.**

# Compact and lightweight one way airflow, perfect for limited ceiling space applications.



**Capacity range: 6,000 – 15,000 Btu/h**

## Quiet operation

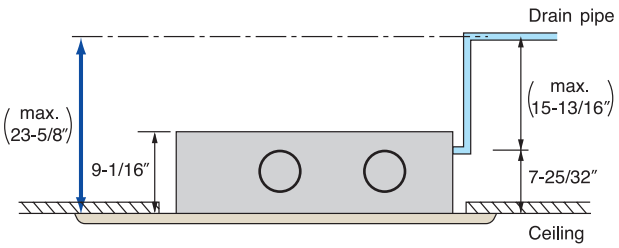
Newly-developed airflow control technology operates as low as 27 dB(A) for industry-leading quiet performance.

## Ideal for small spaces

The PMFY model is a one-way, ceiling-recessed cassette unit perfect for shallow ceiling spaces. The PMFY unit moves air in one direction and can introduce ventilation air. It is designed especially for use in areas like hotel rooms which cannot support duct work or lack sufficient space to allow for wall-mounted units. The PMFY is available in 6,000, 8,000, 12,000 and 15,000 Btu/h capacities.

## Drain lift-up mechanism

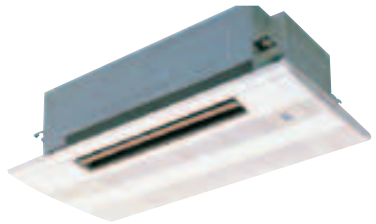
The drain pipe can be extended anywhere up to 23-5/8" above the ceiling's surface.




## Compact size for easy installation and maintenance

Unit body size has been standardized for all models at 31-31/32" for easier installation. This profile is one of the smallest of all CITY MULTI ceiling models, with a height of only 9-1/16" – ideal for tight locations. Unit weight is only 31 pounds for the main unit and seven pounds for the panel, making this unit one of the lightest in the industry.

# PMFY-P-NBMU-E SPECIFICATIONS



| Model | | | PMFY-P06NBMU-E | PMFY-P08NBMU-E | PMFY-P12NBMU-E | PMFY-P15NBMU-E |
|---|---|---|---|---|---|---|
| Power Source | | | 208/230V, 1 Phase, 60Hz | | | |
| Cooling Capacity | | Btu/h *1 | 6,000 | 8,000 | 12,000 | 15,000 |
| Heating Capacity | | Btu/h *1 | 6,700 | 9,000 | 13,500 | 17,000 |
| Power Consumption | Cooling | W | 40 | 40 | 40 | 50 |
| | Heating | W | 40 | 40 | 40 | 50 |
| Current | Cooling | A | 0.20 | 0.20 | 0.21 | 0.26 |
| | Heating | A | 0.20 | 0.20 | 0.21 | 0.26 |
| External Finish | | | Grille: Munsell 0.98Y 8.99/0.63 | | | |
| Dimensions | Height | Inches | 9-1/16 | 9-1/16 | 9-1/16 | 9-1/16 |
| | Width | Inches | 31-31/32 | 31-31/32 | 31-31/32 | 31-31/32 |
| | Depth | Inches | 15-9/16 | 15-9/16 | 15-9/16 | 15-9/16 |
| Net Weight *2 | Unit/Panel | Pounds | 31/7 | 31/7 | 31/7 | 31/7 |
| Heat Exchanger | | | Cross Fin (Aluminum Plate Fin and Copper Tube) | | | |
| Fan | Type x quantity | | Line Flow Fan x 1 | | | |
| | Airflow Rate *3 | CFM | 230-254-283-307 | 258-283-304-328 | 258-283-304-328 | 272-307-340-378 |
| | Motor Type | | DC Brushless Motor | | | |
| | Motor Output | W | 28 | 28 | 28 | 28 |
| Air Filter | | | PP Honeycomb | | | |
| Refrigerant Pipe | Low Pressure (Flare) | Inches | 1/2 | 1/2 | 1/2 | 1/2 |
| Dimensions | High Pressure (Flare) | Inches | 1/4 | 1/4 | 1/4 | 1/4 |
| Condensate Lift Mechanism (standard) | | Inches | 23-5/8 | 23-5/8 | 23-5/8 | 23-5/8 |
| Drain Pipe Dimension | | Inches | O.D. 1-1/32 | O.D. 1-1/32 | O.D. 1-1/32 | O.D. 1-1/32 |
| Sound Levels *3 | (Low-Mid1-Mid2-High) | dB(A) | 27-30-33-35 | 32-34-36-37 | 32-34-36-37 | 33-35-37-39 |

**Note:** *1 Cooling / Heating capacity indicates the maximum value at operation under the following conditions:
Cooling: Indoor: 80°F (27°C) DB / 67°F (19°C) WB; Outdoor: 95°F (35°C) DB
Heating: Indoor: 70°F (21°C) DB; Outdoor: 45°F (7°C) DB / 43°F (6°C) WB

*2 Net weight is shown for unit/panel

*3 Airflow rate / sound levels are at (Low-Mid1-Mid2-High)

Ventilation Air: Providing sufficient ventilation air is an important part of every building design. ASHRAE Standard 62 provides the minimum ventilation air requirements. Also check local codes.

**Specifications are subject to change.**

# Compact design ideal for classrooms, restaurants, and stores.

**Capacity range: 15,000 – 36,000 Btu/h**

## Superior performance provides plenty of relief

Powerful cooling and heating performance is what the PCFY style is all about. This easy-to-install, ceiling-suspended unit delivers enough cold or hot air to make any space more comfortable. Manually adjusted, over-sized swing louvers direct the airflow left or right, covering the entire space quietly and efficiently.

The dimensions of the compact PCFY style make it perfect for classrooms, restaurants, kitchens, and other large commercial spaces where ovens and other equipment add to an already-taxed cooling or heating load. The PCFY is available in 15,000, 24,000, 30,000 and 36,000 Btu/h capacities.

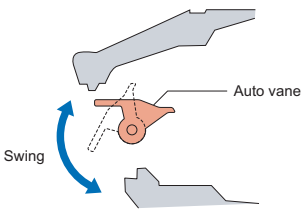
## Quiet, powerful airflow

Appropriate airflow can be selected to enhance air-conditioning efficiency and comfort while operating at a low sound level.

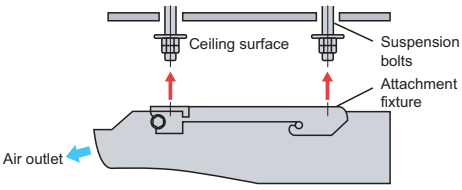
| Model Name | Airflow Rate | Sound Level at Low Airflow |
|---|---|---|
| PCFY-P15NKMU-E | 353-388-424-459 | 29 dB(A) |
| PCFY-P24NKMU-E | 494-530-565-636 | 31 dB(A) |
| PCFY-P30NKMU-E | 703-777-883-989 | 34 dB(A) |
| PCFY-P36NKMU-E | 742-847-953-1,095 | 36 dB(A) |

## Strong, efficient airflow

PCFY's auto-vane and wide-range outlet swings he conditioned air and distributes it uniformly to all corners of the room. Accessory filters are also available to increase filtration effectiveness.



## Easy install with direct suspension




The PCFY's direct suspension allows it to be installed onto most ceiling surfaces quickly and securely using only suspension bolts and the PCFY's durable attachment fixture. An optional pump kit is available to dispose of condensate (model# PAC-SH91MK-E).

## The i-see™ sensor accessory

i-see Sensor

In addition to the return air temperature, the PCFY ceiling-suspended unit with the field installed i-see sensor measures the average floor temperature, observing the room vertically for better management of temperature at occupied levels. The i-see sensor measures the infrared rays generated from the surrounding wall and floor surface at an angle of 360°. This infrared ray energy is converted into a temperature value. The i-see sensor rotates 90° slowly – in five-second intervals – for correct measurement of temperature to cover the full floor space.

# PCFY SPECIFICATIONS

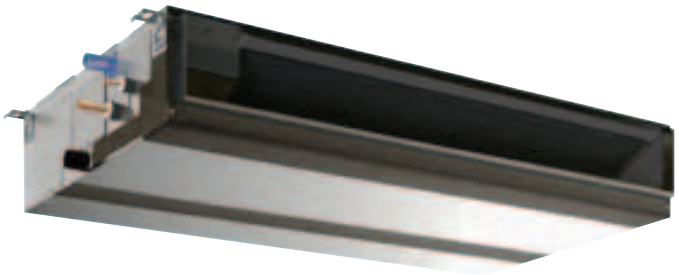
| Model Name | | | PCFY-P15NKMU-E | PCFY-P24NKMU-E | PCFY-P30NKMU-E | PCFY-P36NKMU-E |
|---|---|---|---|---|---|---|
| Power Source | | | 208 / 230V, 1 Phase, 60Hz | | | |
| Cooling Capacity | | Btu/h *1 | 15,000 | 24,000 | 30,000 | 36,000 |
| Heating Capacity | | Btu/h *1 | 17,000 | 27,000 | 34,000 | 40,000 |
| Power Consumption | Cooling | W | 30 | 40 | 90 | 110 |
| | Heating | W | 30 | 40 | 90 | 110 |
| Current | Cooling | A | 0.35 | 0.41 | 0.83 | 0.97 |
| | Heating | A | 0.35 | 0.41 | 0.83 | 0.97 |
| External Finish | Munsell No. | | 6.4Y 8.9 / 0.4 | | | |
| Dimensions | Height | Inches | 9-1/16 | | | |
| | Width | Inches | 37-13/16 | 50-3/8 | 63 | |
| | Depth | Inches | 26-3/4 | | | |
| Net Weight | Unit | Pounds | 53 | 71 | 79 | 84 |
| Heat Exchanger | | | Cross Fin (Aluminum Plate Fin and Copper Tube) | | | |
| Fan | Type x quantity | | Sirocco Fan x 2 | Sirocco Fan x 3 | Sirocco Fan x 4 | |
| | Airflow Rate *2 | CFM | 353-388-424-459 | 494-530-565-636 | 703-777-883-989 | 742-847-953-1,095 |
| | Motor Type | | Direct-driven DC Motor | | | |
| | Motor Output | W | 90 | 95 | 160 | |
| Air Filter | | | Polypropylene Honeycomb | | | |
| Refrigerant Pipe Dimensions | Low Pressure (Flare) | Inches | 1/2 | 5/8 | | |
| | High Pressure (Flare) | Inches | 1/4 | 3/8 | | |
| Drain Pipe Dimension (O.D.) | | Inches | 1 | | | |
| Sound Pressure Levels | Lo-Mid1-Mid2-Hi | dB(A) | 29-32-34-36 | 31-33-35-37 | 34-37-40-43 | 36-39-42-44 |

*1 Cooling/Heating Capacity indicates the maximum value at operation under the following conditions:
Cooling: Indoor: 80° F (27°C) DB / 67° F (19°C) WB; Outdoor 95° F (35°C) DB
Heating: Indoor: 70° F (21°C) DB; Outdoor: 45° F (7°C) DB / 43° F (6°C) WB
*2 Airflow rate/sound pressure levels are at Low-Mid1-Mid2-Hi.

Ventilation Air: Providing sufficient ventilation air is an important part of very building design. ASHRAE Standard 62 provides the minimum air requirements. Also check local codes.

**Specifications are subject to change.**

# Flexible design allows elegant interior layout.

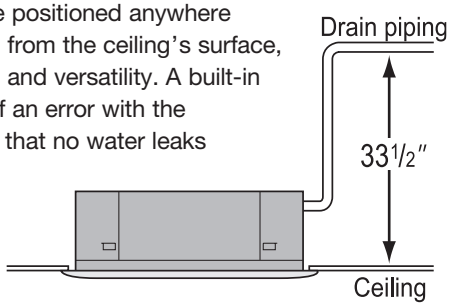


## Designed to be neither seen nor heard, just to perform

The PEFY model is a high-performance, ceiling-concealed, ducted indoor unit. In fact, if it weren't for the constantly comfortable environment this unit delivers, you might not even know it was there. The ducted fan coils are designed to be installed above the ceiling, hidden from public view.
And it's extremely quiet, with sound ratings as low as 22 dB(A). But hidden doesn't mean hard to reach. The PEFY fan coils are extremely easy to access and maintain according to their application. The unit opens on one side so you can easily access the fan or motor for maintenance. It's easy to customize to your cooling and heating needs. The external static pressure settings are adjustable to
meet different Application conditions, such as the use of a high-performance filter.

## Built-in condensate lift mechanism

The drain piping can be positioned anywhere up to 21–11/16" inches from the ceiling's surface, allowing for long piping and versatility. A built-in switch halts operation if an error with the pump occurs, ensuring that no water leaks from the unit.




## Choice of external static pressure

The additional external static pressure capacity provides flexibility for duct extension, branching, and air outlet configuration.The factory setting of 0.20" W.G. can be field–adjusted to 0.14" W.G. or 0.60" W.G. to match installed duct work for PEFY Medium static indoor units. The PEFY indoor unit is available in a low-profile option with up to 0.20" W.G.and
an alternate high-static option for up to 0.80" W.G.

## Even smaller compact size
(PEFY-P-NMSU)

The PEFY-P**NMSU-E model is very compact, with a height of 7-7/8". Additional features for the PEFY-NMSU include an increased external static pressure (setting available up to 0.20" W.G.), and built-in condensate lift mechanism (21–11/16"). Standard features include brazed refrigerant connections, rear air return, and auto fan mode. The unit is extremely quiet–as low as 22 dB(A)–and the control panel is located on the opposite side from other ducted models.

This unit is an ideal choice for guest rooms in hotels, dormitories, assisted living centers or any application with tight vertical clearances and minimal duct work.

## Quiet operation thanks to a specially designed centrifugal fan

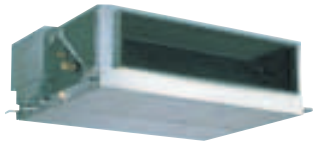
### Operating Sound Range

| | PEFY-P-NMAU-E | P06 | P08 | P12 | P15 | P18 | P24 | P27 | P30 | P36 | P48 | P54 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sound Level dB(A) | Fan Speed: Low-High | 26-29 | | 28-34 | | 28-35 | 29-36 | 30-38 | | 32-41 | 35-44 | 36-45 |

| | PEFY-P-NMSU-E | P06 | P08 | P12 | P15 | P18 | P24 |
|---|---|---|---|---|---|---|---|
| Sound Level dB(A) | Fan Speed: Low-High | 22-28 | 23-30 | 23-35 | 28-33 | 30-37 | 30-40 |

| | PEFY-P-NMHU-E | P15 | P18 | P24 | P27 | P30 | P36 | P48 | P54 | P72 | P96 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sound Level dB(A) | Fan Speed: Low-High | 34-39 | | 36-41 | 35-41 | 38-43 | 38-44 | | | 47 | 54 |

# PEFY-P-NMHU-E SPECIFICATIONS ALTERNATE HIGH STATIC OPTION



| Model Name | | | PEFY-P15NMHU-E | PEFY-P18NMHU-E | PEFY-P24NMHU-E | PEFY-P27NMHU-E | PEFY-P30NMHU-E |
|---|---|---|---|---|---|---|---|
| Power Source | | | 208/230V, 1-phase, 60Hz | | | | |
| Cooling Capacity *1 | | Btu/h | 15,000 | 18,000 | 24,000 | 27,000 | 30,000 |
| Heating Capacity *1 | | Btu/h | 17,000 | 20,000 | 27,000 | 30,000 | 34,000 |
| Power Consumption | Cooling | W | 188/207 | 188/207 | 245/270 | 270/297 | 326/360 |
| | Heating | W | 188/207 | 188/207 | 245/270 | 270/297 | 326/360 |
| Current | Cooling | A | 0.96/1.06 | 0.96/1.06 | 1.25/1.38 | 1.37/1.51 | 1.66/1.83 |
| | Heating | A | 0.96/1.06 | 0.96/1.06 | 1.25/1.38 | 1.37/1.51 | 1.66/1.83 |
| External Finish | | | Unit: Galvanized Steel Plate | | | | |
| Dimensions | Height | Inches | 14-31/32 | 14-31/32 | 14-31/32 | 14-31/32 | 14-31/32 |
| | Width | Inches | 29-17/32 | 29-17/32 | 29-17/32 | 39-3/8 | 39-3/8 |
| | Depth | Inches | 35-7/16 | 35-7/16 | 35-7/16 | 35-7/16 | 35-7/16 |
| Net Weight | Unit | Pounds | 98 | 100 | 100 | 111 | 111 |
| Heat Exchanger | | | Cross Fin (Aluminum Plate Fin and Copper Tube) | | | | |
| Fan | Type x Quantity | | Sirocco Fan x 1 | Sirocco Fan x 1 | Sirocco Fan x 1 | Sirocco Fan x 1 | Sirocco Fan x 1 |
| | Airflow Rate *2 | CFM | 353-494 | 353-494 | 477-671 | 547-777 | 636-883 |
| | Ext. Static Pressure (208/230V) | In. W.G. | 0.201-0.642/0.401-0.602-0.803 | | | | |
| | Motor Type | | Single-phase Induction Motor | | | | |
| | Motor Output | W | 130 | 130 | 180 | 220 | 230 |
| Air Filter | | | Optional Part | | | | |
| Refrigerant Pipe Dimensions | Low Pressure | Inches | 1/2 (Flare) | 1/2 (Flare) | 5/8 (Flare) | 5/8 (Flare) | 5/8 (Flare) |
| | High Pressure | Inches | 1/4 (Flare) | 1/4 (Flare) | 3/8 (Flare) | 3/8 (Flare) | 3/8 (Flare) |
| Drain pipe Dimension (O.D.) | | Inches | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/4 |
| Sound Pressure Levels *2 (Low-High) | | dB(A) @ 230V | 34-39 | 34-39 | 36-41 | 35-41 | 38-43 |

| Model Name | | | PEFY-P36NMHU-E | PEFY-P48NMHU-E | PEFY-P54NMHU-E | PEFY-P72NMHU-E | PEFY-P96NMHU-E |
|---|---|---|---|---|---|---|---|
| Power Source | | | 208/230V, 1-phase, 60Hz | | | 208/230V, 3-phase, 60Hz | |
| Cooling Capacity *1 | | Btu/h | 36,000 | 48,000 | 54,000 | 72,000 | 96,000 |
| Heating Capacity *1 | | Btu/h | 40,000 | 54,000 | 60,000 | 80,000 | 108,000 |
| Power Consumption | Cooling | W | 683/754 | 683/754 | 695/767 | 1,352/1,495 | 1,690/1,870 |
| | Heating | W | 683/754 | 683/754 | 695/767 | 1,352/1,495 | 1,690/1,870 |
| Current | Cooling | A | 3.38/3.73 | 3.38/3.73 | 3.43/3.78 | 4.48/4.94 | 5.69/6.28 |
| | Heating | A | 3.38/3.73 | 3.38/3.73 | 3.43/3.78 | 4.48/4.94 | 5.69/6.28 |
| External Finish | | | Unit: Galvanized Steel Plate | | | | |
| Dimensions | Height | Inches | 14-31/32 | 14-31/32 | 14-31/32 | 18-17/32 | 18-17/32 |
| | Width | Inches | 47-1/4 | 47-1/4 | 47-1/4 | 49-7/32 | 49-7/32 |
| | Depth | Inches | 35-7/16 | 35-7/16 | 35-7/16 | 44-1/8 | 44-1/8 |
| Net Weight | Unit | Pounds | 155 | 155 | 155 | 221 | 221 |
| Heat Exchanger | | | Cross Fin (Aluminum Plate Fin and Copper Tube) | | | | |
| Fan | Type x Quantity | | Sirocco Fan x 2 | Sirocco Fan x 2 | Sirocco Fan x 2 | Sirocco Fan x 2 | Sirocco Fan x 2 |
| | Airflow Rate *2 | CFM | 936-1,342 | 936-1,342 | 989-1,412 | 2,048 | 2,541 |
| | Ext. Static Pressure (208/230V) | In. W.G. | 0.201-0.642/0.401-0.602-0.803 | | | 0.28-0.642/0.40-0.80 | |
| | Motor Type | | Single-phase Induction Motor | | | Three-phase Induction Motor | |
| | Motor Output | W | 400 | 400 | 400 | 650 | 850 |
| Air Filter | | | Optional Part | | | | |
| Refrigerant Pipe Dimensions | Low Pressure | Inches | 5/8 (Flare) | 5/8 (Flare) | 5/8 (Flare) | 3/4 (Brazed) | 7/8 (Brazed) |
| | High Pressure | Inches | 3/8 (Flare) | 3/8 (Flare) | 3/8 (Flare) | 3/8 (Brazed) | 3/8 (Brazed) |
| Drain pipe Dimension (O.D.) | | Inches | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/4 |
| Sound Levels *2 (Low-High) | | dB(A) @ 230V | 38-44 | 38-44 | 38-44 | 47 | 54 |

**Note:**
*1 Cooling/Heating capacity indicates the maximum value at operation under the following conditions:
Cooling: Indoor: 80ºF (27ºC) DB/67ºF (19ºC) WB; Outdoor: 95ºF (35ºC) DB
Heating: Indoor: 70ºF (21ºC) DB; Outdoor: 47ºF (8ºC) DB/43ºF (6ºC) WB
*2 Airflow rate/sound levels are at (Low-High)

Ventilation Air: Providing sufficient ventilation air is an important part of every building design.
ASHRAE standard 62 provides the minimum ventilation air requirements. Also check local codes.

**Specifications are subject to change.**

# PEFY-P-NMAU-E SPECIFICATIONS (Medium static)

| Model Name | | | PEFY-P06NMAU-E | PEFY-P08NMAU-E | PEFY-P12NMAU-E | PEFY-P15NMAU-E | PEFY-P18NMAU-E | PEFY-P24NMAU-E |
|---|---|---|---|---|---|---|---|---|
| Power Source | | | 208 / 230V, 1 Phase, 60Hz | | | | | |
| Cooling Capacity | | Btu/h *1 | 6,000 | 8,000 | 12,000 | 15,000 | 18,000 | 24,000 |
| Heating Capacity | | Btu/h *1 | 6,700 | 9,000 | 13,500 | 17,000 | 20,000 | 27,000 |
| Power Consumption | Cooling | W | 60 | | 90 | | 110 | 120 |
| | Heating | W | 40 | | 70 | | 90 | 100 |
| Current | Cooling | A | 0.56 | | 0.66 | 0.67 | 0.77 | 1.04 |
| | Heating | A | 0.45 | | 0.55 | 0.56 | 0.66 | 0.93 |
| External Finish | | | Galvanized-steel Sheet | | | | | |
| Dimensions | Height | Inches | 9-13/16 | | | | | |
| | Width | Inches | 27-9/16 | | | 35-7/16 | | 43-5/16 |
| | Depth | Inches | 28-7/8 | | | | | |
| Net Weight | Unit | Pounds | 51 | | | 58 | | 71 |
| Heat Exchanger | | | Cross Fin (Aluminum Plate Fin and Copper Tube) | | | | | |
| Fan | Type x quantity | | Sirocco Fan x 1 | | | | | Sirocco Fan x 2 |
| | Airflow Rate *2 | CFM | 212-265-300 | | 265-318-371 | 353-424-494 | 424-512-600 | 477-565-671 |
| | External Static Pressure | In.WG | 0.14-0.20-0.28-0.40-0.60 | | | | | |
| | Motor Type | | Direct-driven DC Brushless Motor | | | | | |
| | Motor Output | W | 85 | | | | | 121 |
| Air Filter | | | Polypropylene Honeycomb | | | | | |
| Refrigerant Pipe Dimensions | Low Pressure (Flare) | Inches | 1/2 | | | | | 5/8 |
| | High Pressure (Flare) | Inches | 1/4 | | | | | 3/8 |
| Drain Pipe Dimension (O.D.) | | Inches | 1-1/4 | | | | | |
| Sound Pressure Levels | Lo-Mid-Hi | dB(A) | 26-28-29 | | 28-30-34 | | 28-32-35 | 29-32-36 |

| Model Name | | | PEFY-P27NMAU-E | PEFY-P30NMAU-E | PEFY-P36NMAU-E | PEFY-P48NMAU-E | PEFY-P54NMAU-E |
|---|---|---|---|---|---|---|---|
| Power Source | | | 208 / 230V, 1 Phase, 60Hz | | | | |
| Cooling Capacity | | Btu/h *1 | 27,000 | 30,000 | 36,000 | 48,000 | 54,000 |
| Heating Capacity | | Btu/h *1 | 30,000 | 34,000 | 40,000 | 54,000 | 60,000 |
| Power Consumption | Cooling | W | 140 | | 240 | 340 | 360 |
| | Heating | W | 120 | | 220 | 320 | 340 |
| Current | Cooling | A | 1.18 | | 1.50 | 2.08 | 2.24 |
| | Heating | A | 1.07 | | 1.39 | 1.97 | 2.13 |
| External Finish | | | Galvanized-steel Sheet | | | | |
| Dimensions | Height | Inches | 9-13/16 | | | | |
| | Width | Inches | 43-5/16 | | 55-1/8 | | 63 |
| | Depth | Inches | 28-7/8 | | | | |
| Net Weight | Unit | Pounds | 71 | | 93 | | 102 |
| Heat Exchanger | | | Cross Fin (Aluminum Plate Fin and Copper Tube) | | | | |
| Fan | Type x quantity | | Sirocco Fan x 2 | | | | |
| | Airflow Rate *2 | CFM | 512-636-742 | | 812-989-1,165 | 989-1,201-1,412 | 1,042-1,254-1,483 |
| | Motor Type | | Direct-driven DC Brushless Motor | | | | |
| | Motor Output | W | 121 | | 244 | | |
| Air Filter | | | Polypropylene Honeycomb | | | | |
| Refrigerant Pipe Dimensions | Low Pressure (Flare) | Inches | 5/8 | | | | |
| | High Pressure (Flare) | Inches | 3/8 | | | | |
| Drain Pipe Dimension (O.D.) | | Inches | 1-1/4 | | | | |
| Sound Pressure Levels | Lo-Mid1-Mid2-Hi | dB(A) | 30-34-38 | | 32-37-41 | 35-40-44 | 36-41-45 |

*1 Cooling/Heating Capacity indicates the maximum value at operation under the following conditions:
Cooling: Indoor: 80° F (27°C) DB / 67° F (19°C) WB; Outdoor 95° F (35°C) DB
Heating: Indoor: 70° F (21°C) DB; Outdoor: 45° F (7°C) DB / 43° F (6°C) WB
*2 Airflow rate/sound pressure levels are at Low-Mid-Hi.

Ventilation Air: Providing sufficient ventilation air is an important part of very building design. ASHRAE Standard 62 provides the minimum air requirements. Also check local codes.

**Specifications are subject to change.**

# Designed for CITY MULTI® PEFY-P-NMAU-E Medium-Static Indoor Units

## FBM Series filter boxes

FB Series filter boxes are available in compatable sizes for all Mr. Slim horizontal ducted indoor units.

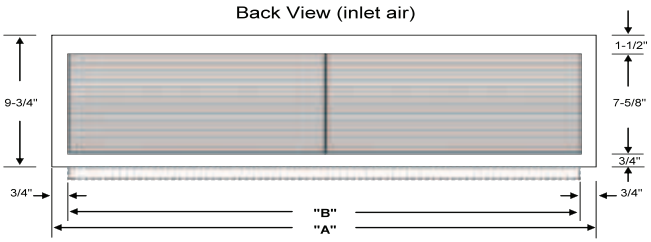
FBM2 boxes include 2" thick pleated MERV 13 filter(s) installed. Filters are tested in accordance with ANSI/ASHRAE Standard 52.2 and Rated Class 2 under U.L. Standard 900.

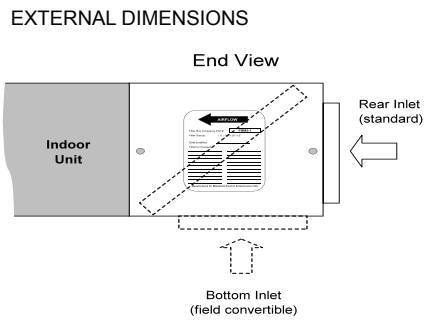
The cabinet is constructed of non-insulated 20 gauge G-60 galvanized steel with a foam for provides air-tight connection to indoor unit and access door – gasket material complies with UL 723 requirements.

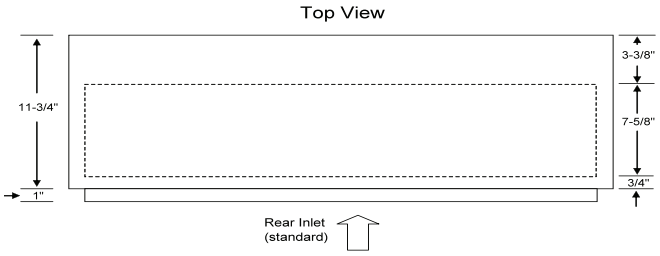
The units screw-through cabinet design for secure attachment to indoor unit and return connection in rear can be easily field converted to bottom return.

## GENERAL FEATURES

- All filter boxes include 2" thick pleated MERV 13 filter(s) installed
  - Rated MERV 13 when tested in accordance with ANSI/ASHRAE 52.2 Standard
  - Rated Class 2 under U.L. Standard 900
- Cabinet is constructed of non-insulated 20 gauge G-60 galvanized steel
- Knurled thumb screws on access door allow easy filter replacement
- Foam gasket provides air-tight connection to indoor unit and access door
- Gasket material complies with UL 723 requirements
- Screw-through cabinet design for secure attachment to indoor unit
- Return connection in rear easily field converted to bottom
- Filter access door includes area to record maintenance schedule



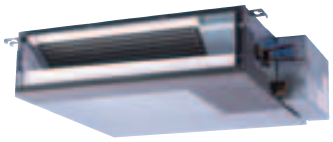




## SPECIFICATIONS

| Part Number | Used on CITY MULTI Models | Filters Included | Net Weight lbs. |
|---|---|---|---|
| FBM2-1 | PEFY-P06, P08, P12-NMAU-E | (1) - 14" x 25" x 2" | 20 |
| FBM2-2 | PEFY-P15, P18-NMAU-E | (1) - 14" x 20" x 2", (1) - 14" x 14" x 2" | 26 |
| FBM2-3 | PEFY-P24, P27, P30-NMAU-E | (2) - 14" x 20" x 2" | 32 |
| FBM2-4 | PEFY-P36, P48-NMAU-E | (2) - 14" x 20" x 2", (1) - 14" x 14" x 2" | 41 |
| FBM2-5 | PEFY-P54-NMAU-E | (3) - 14" x 20" x 2" | 46 |

# PEFY-P-NMSU-E SPECIFICATIONS LOW PROFILE



| Model Name | | | PEFY-P06NMSU-E* 1 | PEFY-P08NMSU-E | PEFY-P12NMSU-E | PEFY-P15NMSU-E | PEFY-P18NMSU-E | PEFY-P24NMSU-E |
|---|---|---|---|---|---|---|---|---|
| Power Source | | | 208/230V, 1-phase, 60Hz | | | | | |
| Cooling Capacity *2 | | Btu/h | 6,000 | 8,000 | 12,000 | 15,000 | 18,000 | 24,000 |
| Heating Capacity *2 | | Btu/h | 6,700 | 9,000 | 13,500 | 17,000 | 20,000 | 27,000 |
| Power Consumption | Cooling | W | 50/50 | 60/60 | 70/70 | | 90/90 | 120/120 |
| | Heating | W | 30/30 | 40/40 | 50/50 | | 70/70 | 100/100 |
| Current | Cooling | A | 0.42/0.41 | 0.51/0.49 | 0.56/0.53 | 0.57/0.55 | 0.74/0.70 | 0.98/0.93 |
| | Heating | A | 0.32/0.31 | 0.41/0.39 | 0.46/0.43 | 0.47/0.45 | 0.64/0.60 | 0.88/0.83 |
| External Finish | | | Galvanized Steel Sheets | | | | | |
| Dimensions | Height | Inches | 7-7/8 | | | | | |
| | Width | Inches | 31-1/8 | | | 39 | | 46-7/8 |
| | Depth | Inches | 27-9/16 | | | | | |
| Net Weight | Unit | | 42 | | 46 | 54 | | 62 |
| Heat Exchanger | | | Cross Fin (Aluminum Plate Fin and Copper Tube) | | | | | |
| Fan | Type x Quantity | | Sirocco Fan x 2 | | | Sirocco Fan x 3 | | Sirocco Fan x 4 |
| | Airflow Rate *3 | CFM | 176-212-247 | 194-247-317 | 211-282-370 | 282-335-388 | 353-441-529 | 423-565-706 |
| | External Static Pressure *4 | In.W.G. | 0.02-0.06-0.14-0.20 | | | | | |
| | Motor Type | | DC Brushless Motor | | | | | |
| | Motor Output | W | 96 | | | | | |
| Air Filter | | | Polypropylene Honeycomb Fabric (washable) | | | | | |
| Refrigerant Pipe Dimensions | Low Pressure (Brazed) | Inches | 1/2 | | | | | 5/8 |
| | High Pressure (Brazed) | Inches | 1/4 | | | | | 3/8 |
| Condensate Lift Mechanism (standard) | | Inches | 21-4/16 | | | | | |
| Drain pipe Dimensions (O.D.) | | Inches | 1-1/4 | | | | | |
| Sound Pressure Levels *3 | Low-Mid-High | dB(A) | 22-24-28 | 23-26-30 | 23-28-35 | 28-30-33 | 30-34-37 | 30-35-40 |

Note:
*1 **PEFY-P06NMSU-E cannot be used with PUHY/PURY-P-TGMU or PQHY/PQRY-P-TGMU units.**
*2 Cooling/Heating capacity indicates the maximum value at operation under the following conditions:
Cooling: Indoor: 80˚F (27˚ C) DB/67˚F (19˚C) WB; Outdoor: 95˚F (35˚C) DB.
Heating: Indoor: 70˚F (21˚C) DB; Outdoor: 47˚F (8˚C) DB/43˚F (6˚C) WB.
*3 Airflow rate/sound pressure levels are at (Low-Mid-High).
*4 External static pressure is factory set to 0.06 in.WG.

Ventilation Air: Providing sufficient ventilation air is an important part of every building design.
ASHRAE Standard 62 provides the minimum ventilation air requirements. Also check local codes.

**Specifications are subject to change.**

# Designed for CITY MULTI® PEFY-P-NMSU-E Low Profile Indoor Units

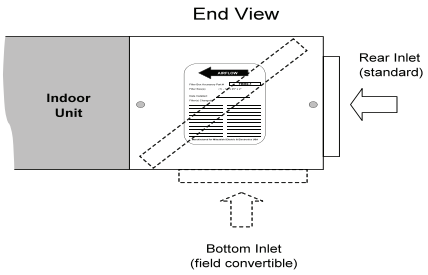
## FBL Series filter boxes

FBL1 filter boxes include 1" thick pleated MERV 8 filter(s). Filters are tested in accordance with ANSI/ASHRAE Standard 52.2 and Rated Class 2 under U.L. Standard 900

The cabinet is constructed of non-insulated 20 gauge G-60 galvanized steel with a foam gasket for air-tight connection to indoor unit and access door – gasket material complies with UL 723 requirements.

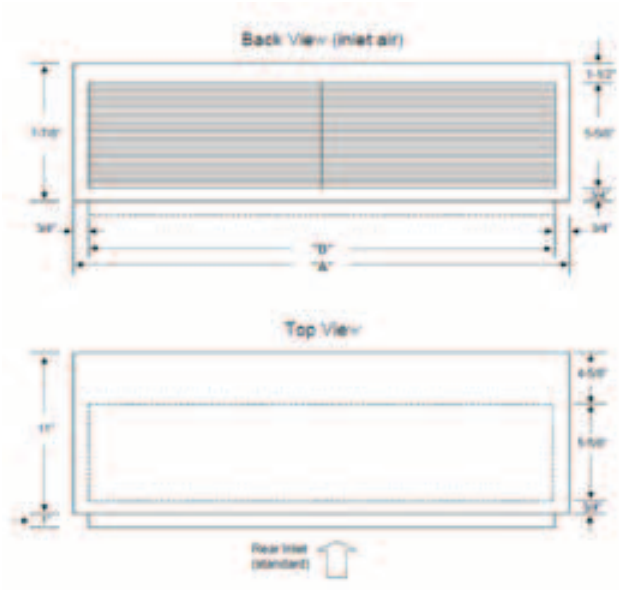
Screw-through cabinet design for secure attachment to indoor unit and return connection in rear easily field converted to bottom return.

EXTERNAL DIMENSIONS




## GENERAL FEATURES

- All filter boxes include 1" thick pleated MERV 8 filter(s) installed
- Rated MERV 8 when tested in accordance with ANSI/ASHRAE 52.2 Standard
- Rated Class 2 under U.L. Standard 900
- Cabinet is constructed of non-insulated 20 gauge G-60 galvanized steel
- Knurled thumb screws on access door allow easy filter replacement
- Foam gasket provides air-tight connection to indoor unit and access door
- Gasket material complies with UL 723 requirements
- Screw-through cabinet design for secure attachment to indoor unit
- Return connection in rear easily field converted to bottom
- Filter access door includes area to record maintenance schedule




## SPECIFICATIONS

| Part Number | Used on CITY MULTI Models | Filters Included | Net Weight lbs. |
|---|---|---|---|
| FBL1-1 | PEFY-P06,P08,P12-NMSU-E | (1) - 12" x 25" x 1" | 12 |
| FBL1-2 | PEFY-P15,P18-NMSU-E | (1) - 12" x 20" x 1", (1) - 12" x 14" x 1" | 15 |
| FBL1-3 | PEFY-P24-NMSU-E | (2) - 12" x 20" x 1" | 18 |

# Effective use of perimeter space.

**Concealed Type**

**PFFY-P-NEMU-E**

**Concealed Type**

**PFFY-P-NRMU-E**

**Capacity range: 6,000 – 24,000 Btu/h**

## Compact unit provides simple, effective air-conditioning in perimeter zones

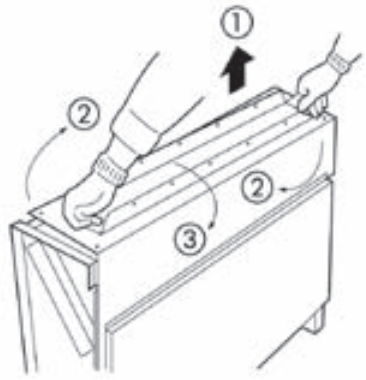
Less than nine inches deep, these PFFY floor-standing units are easy to install in peripheral spaces, yet offer highly efficient air-conditioning performance. Since these are floor-standing models, they are perfect for spaces with little or no ceiling space. Their low operating sound and compact size make them ideal for hotel rooms. The PFFY offers tremendous flexibility in two distinct versions. The PFFY-NEMU exposed-type model is perfect for most applications and requires no finish work. The PFFY-NRMU is designed for applications requiring a built-in, concealed, floor-standing unit. Both types are available in 6,000, 8,000, 12,000, 15,000, 18,000 and 24,000 Btu/H capacities.

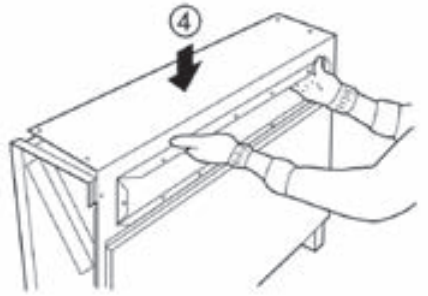
## Optional mounting for remote controller

PFFY units can house either a Deluxe MA or ME Remote Controller in the top corner (under a cover panel). Thus, the remote controller can be mounted on the wall or in the PFFY unit.

## Installation flexibility

The PFFY-P-NRMU-E unit can be field–converted from top discharge to front discharge to increase installation flexibility.



# PFFY-P-NEMU/NRMU-E SPECIFICATIONS

**PFFY-P-NEMU-E**

| Model | | | PFFY-P06NEMU-E | PFFY-P08NEMU-E | PFFY-P12NEMU-E | PFFY-P15NEMU-E | PFFY-P18NEMU-E | PFFY-P24NEMU-E |
|---|---|---|---|---|---|---|---|---|
| Power Source | | | 208/230V, 1 Phase, 60Hz | | | | | |
| Cooling Capacity | | Btu/h *1 | 6,000 | 8,000 | 12,000 | 15,000 | 18,000 | 24,000 |
| Heating Capacity | | Btu/h *1 | 6,700 | 9,000 | 13,500 | 17,000 | 20,000 | 27,000 |
| Power Consumption | Cooling | W | 51/61 | 51/61 | 55/67 | 65/78 | 78/93 | 96/114 |
| | Heating | kW | 51/61 | 51/61 | 55/67 | 65/78 | 78/93 | 96/114 |
| Current | Cooling | A | 0.25/0.27 | 0.25/0.27 | 0.27/0.30 | 0.32/0.35 | 0.38/0.42 | 0.47/0.51 |
| | Heating | A | 0.25/0.27 | 0.25/0.27 | 0.27/0.30 | 0.32/0.35 | 0.38/0.42 | 0.47/0.51 |
| External Finish (Munsell No.) | | | Acrylic Painted (5Y 8/1) | | | | | |
| Dimensions | Height | Inches | 24-13/16 | 24-13/16 | 24-13/16 | 24-13/16 | 24-13/16 | 24-13/16 |
| | Width | Inches | 41-11/32 | 41-11/32 | 46-3/32 | 46-3/32 | 55-17/32 | 55-17/32 |
| | Depth | Inches | 8-11/16 | 8-11/16 | 8-11/16 | 8-11/16 | 8-11/16 | 8-11/16 |
| Net Weight | Unit | Pounds | 51 | 51 | 56 | 58 | 67 | 71 |
| Heat Exchanger | | | Cross Fin (Aluminum Plate Fin and Copper Tube) | | | | | |
| Fan | Type x Quantity | | Sirocco Fan x 1 | Sirocco Fan x 1 | Sirocco Fan x 2 | Sirocco Fan x 2 | Sirocco Fan x 2 | Sirocco Fan x 2 |
| | Airflow Rate *2 | CFM | 194-229 | 194-229 | 247-317 | 300-388 | 353-459 | 353-494 |
| | Motor Type | | Single Phase Induction Motor | | | | | |
| | Motor Output | W | 15 | 15 | 18 | 30 | 35 | 63 |
| Air Filter | | | Standard Filter | | | | | |
| Refrigerant Pipe Dimensions | Low Pressure (Flare) | Inches | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 5/8 |
| | High Pressure (Flare) | Inches | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 3/8 |
| Drain Pipe Dimension | | Inches | O.D. 1-3/32 | | | | | |
| Sound Levels *2 | (Low-High) | dB(A) | 36-41 | 36-41 | 37-41 | 38-43 | 38-43 | 40-46 |

**Note:** *1 Cooling / Heating capacity indicates the maximum value at operation under the following conditions:
Cooling: Indoor: 80°F (27°C) DB / 67°F (19°C) WB; Outdoor: 95°F (35°C) DB
Heating: Indoor: 70°F (21°C) DB; Outdoor: 45°F (7°C) DB / 43°F (6°C) WB
*2 Airflow rate/sound levels are at (Low-High)

Ventilation Air: Providing sufficient ventilation air is an important part of every building design.
ASHRAE standard 62 provides the minimum ventilation air requirements. Also check local codes.

**Specifications are subject to change.**

**PFFY-P-NRMU-E**

| Model | | | PFFY-P06NRMU-E | PFFY-P08NRMU-E | PFFY-P12NRMU-E | PFFY-P15NRMU-E | PFFY-P18NRMU-E | PFFY-P24NRMU-E |
|---|---|---|---|---|---|---|---|---|
| Power Source | | | 208/230V, 1 Phase, 60Hz | | | | | |
| Cooling Capacity | | Btu/h *1 | 6,000 | 8,000 | 12,000 | 15,000 | 18,000 | 24,000 |
| Heating Capacity | | Btu/h *1 | 6,700 | 9,000 | 13,500 | 17,000 | 20,000 | 27,000 |
| Power Consumption | Cooling | W | 51/61 | 51/61 | 55/67 | 65/78 | 78/93 | 96/114 |
| | Heating | W | 51/61 | 51/61 | 55/67 | 65/78 | 78/93 | 96/114 |
| Current | Cooling | A | 0.25/0.27 | 0.25/0.27 | 0.27/0.30 | 0.32/0.35 | 0.38/0.42 | 0.47/0.51 |
| | Heating | A | 0.25/0.27 | 0.25/0.27 | 0.27/0.30 | 0.32/0.35 | 0.38/0.42 | 0.47/0.51 |
| External Finish (Munsell No.) | | | Galvanized Sheet Metal | | | | | |
| Dimensions | Height | Inches | 25-3/16 | 25-3/16 | 25-3/16 | 25-3/16 | 25-3/16 | 25-3/16 |
| | Width | Inches | 34-29/32 | 34-29/32 | 39-5/8 | 39-5/8 | 49-1/16 | 49-1/16 |
| | Depth | Inches | 8-11/16 | 8-11/16 | 8-11/16 | 8-11/16 | 8-11/16 | 8-11/16 |
| Net Weight | Unit | Pounds | 41 | 41 | 45 | 47 | 56 | 60 |
| Heat Exchanger | | | Cross Fin (Aluminum Plate Fin and Copper Tube) | | | | | |
| Fan | Type x Quantity | | Sirocco Fan x 1 | Sirocco Fan x 1 | Sirocco Fan x 2 | Sirocco Fan x 2 | Sirocco Fan x 2 | Sirocco Fan x 2 |
| | Airflow Rate *2 | CFM | 194-229 | 194-229 | 247-317 | 300-388 | 353-459 | 353-494 |
| | Motor Type | | Single Phase Induction Motor | | | | | |
| | Motor Output | kW | 0.015 | 0.015 | 0.018 | 0.030 | 0.035 | 0.063 |
| Air Filter | | | Standard Filter | | | | | |
| Refrigerant Pipe Dimensions | Low Pressure (Flare) | Inches | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 5/8 |
| | High Pressure (Flare) | Inches | 1/4 | 1/4 | 1/4 | 1/4 | 1/4 | 3/8 |
| Drain Pipe Dimension | | Inches | O.D. 1-3/32 | | | | | |
| Sound Levels *2 | (Low-High) | dB(A) | 36-41 | 36-41 | 37-41 | 38-43 | 38-43 | 40-46 |

**Note:** *1 Cooling / Heating capacity indicates the maximum value at operation under the following conditions:
Cooling: Indoor: 80°F (27°C) DB / 67°F (19°C) WB; Outdoor: 95°F (35°C) DB
Heating: Indoor: 70°F (21°C) DB; Outdoor: 45°F (7°C) DB / 43°F (6°C) WB
*2 Airflow rate/sound levels are at (Low-High)

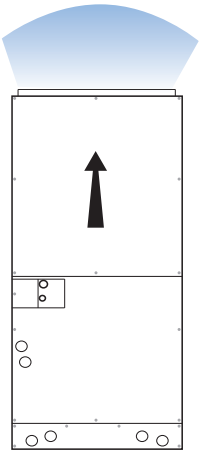
Ventilation Air: Providing sufficient ventilation air is an important part of every building design.
ASHRAE standard 62 provides the minimum ventilation air requirements. Also check local codes.

**Specifications are subject to change.**

## Ideal for closet or attic applications.

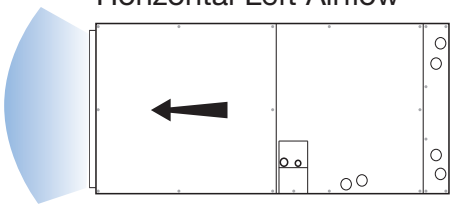
**Capacity range: 12,000 – 54,000 Btu/h**

Vertical Airflow



*High efficiency DC motor maintains constant CFM even with varying input voltages*

Horizontal Left Airflow



## The Vertical Air Handler

The PUFY Vertical Air Handler is ideal for installations in closets or equipment rooms where space is limited. It also has a side drain pan allowing it to be installed in a horizontal left position. The vertical air handler can be connected to a system with all other CITY MULTI indoor units for complete system design flexibility.

Other features include:

- An adjustable blower static pressure from a factory set 0.30" W.G. to 0.50" W.G.
- The blower includes three fan speeds selectable at the remote controller, allowing the occupant to fine-tune the occupant's comfort
- High efficiency DC Motors and a forward curved blower provide quiet efficient operation
- A standard plug-in connection allows easy integration with auxiliary heat when using the optional relay kit.
- The control board allows an easy connection for a condensate overflow safety switch
- The cabinets are constructed of heavy gauge pre-painted steel with one-inch insulation providing an R-4.2 insulating value
- Conversion kit now available for down flow configuration

# PVFY-P-E00A SPECIFICATIONS

| Model Name | | | PVFY-P12E00A | PVFY-P18E00A | PVFY-P24E00A | PVFY-P30E00A | PVFY-P36E00A | PVFY-P48E00A | PVFY-P54E00A |
|---|---|---|---|---|---|---|---|---|---|
| Power Source | | | 208/230V, 1-phase, 60Hz | | | | | | |
| Cooling Capacity | | Btu/h *1 | 12,000 | 18,000 | 24,000 | 30,000 | 36,000 | 48,000 | 54,000 |
| Heating Capacity | | Btu/h *1 | 13,500 | 20,000 | 27,000 | 34,000 | 40,000 | 54,000 | 60,000 |
| Power Consumption | Cooling | kW | 0.17 / 0.17 | 0.28 / 0.28 | 0.26 / 0.26 | 0.38 / 0.38 | 0.32 / 0.32 | 0.36/0.36 | 0.41/0.41 |
| | Heating | kW | 0.17 / 0.17 | 0.28 / 0.28 | 0.26 / 0.26 | 0.38 / 0.38 | 0.32 / 0.32 | 0.36/0.36 | 0.41/0.41 |
| Current | Cooling | A | 0.69 / 0.61 | 1.48 / 1.31 | 1.48 / 1.31 | 2.38 / 2.11 | 0.93 / 1.71 | 2.27/2.01 | 2.83/2.51 |
| | Heating | A | 0.69 / 0.61 | 1.48 / 1.31 | 1.48 / 1.31 | 2.38 / 2.11 | 0.93 / 1.71 | 2.27/2.01 | 2.83/2.51 |
| Dimensions | Height | Inches | 42-7/8 | | | 48-1/8 | | 58-3/4 | |
| | Width | Inches | 17-5/8 | | | 21-1/16 | | 24-1/2 | |
| | Depth | Inches | 21-1/16 | | | 21 | | 21-3/4 | |
| Net Weight | Unit | Pounds | 88 | 98 | 108 | 115 | 120 | 160 | 168 |
| Heat Exchanger | | | Aluminum Fin and Copper Tube | | | | | | |
| Fan | Type x Qty. | | Forward Curved Blower x 1 | | | | | | |
| | Airflow Rate *2 | CFM | 243-320-376 | 385-481-531 | 483-636-705 | 637-800-886 | 784-954-1057 | 982-1268-1405 | 1114-1426-1576 |
| | External Static Pressure | In. W.G. | 0.30 - 0.50 (selectable) | | | | | | |
| | Motor Type | | High Efficiency DC (Single-phase Induction Motor) | | | | | | |
| Filter | | | Filter and Rack field supplied | | | | | | |
| Refrigerant Pipe Dimensions | Low Pressure (Brazed) | Inches | 1/4 | 1/4 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| | High Pressure (Brazed) | Inches | 1/2 | 1/2 | 5/8 | 5/8 | 5/8 | 5/8 | 5/8 |
| Drain Pipe Dimension | Primary | Inches | 3/4 FPT | | | | | | |
| | Secondary | | 3/4 FPT | | | | | | |
| Sound Pressure Levels | Lo-Mid-Hi | dB(A) | 29-31-35 | 29-32-36 | 30-33-39 | 31-34-38 | 33-38-42 | 36-41-45 | 31-34-38 |

Note:
*1 Cooling/Heating capacity indicates the maximum value at operation under the following conditions:
Cooling: Indoor: 80˚F (27˚C) DB/67˚F (19˚C) WB; Outdoor: 95˚F (35˚C) DB
Heating: Indoor: 70˚F (21˚C) DB; Outdoor: 47˚F (8˚C) DB/43˚F (6˚C) WB
*2 Airflow rates are at (Low-Mid-High)

Ventilation Air: Providing sufficient ventilation air is an important part of every building design.
ASHRAE standard 62 provides the minimum ventilation air requirements. Also check local codes.

**Specifications are subject to change.**

## Our CITY MULTI Controls Network makes it easy to manage your building

The CITY MULTI Controls Network (CMCN) manages up to **2,000 indoor units** from a single networked PC–operation, monitoring, scheduling (daily, weekly, and yearly), error email, personal browser, tenant billing, and maintenance diagnostic information. The CMCN puts individual, personalized comfort in the hands of the tenants and the building manager.

## Flexible design for customized, individual zone control

Building owners and engineers can select from a wide variety of remote controllers and timers to satisfy the exact level of tenant control on a zone-by-zone basis, while providing the ultimate in individualized control. Each indoor unit may have one or two remote controllers or none at all.

The remote controllers allow the temperature set point to be changed along with On/Off control and fan speed adjustment. Mode selection (Cool/Heat/Dry/Fan/Auto) and vane control are also possible, depending on the remote controller and indoor unit.

The CMCN enables the room temperature to be sensed either at the remote controller in the zone or the actual indoor unit simply by changing the dip switch setting on the indoor unit. Depending on the type of remote controller, the remote controller can be physically located in the controlled zone or in a physical location different than the controlled zone to meet the customer's specific requirements.

The versatility of the CMCN customizes each building's controls network to address the specific design and tenant requirements, while providing unparalleled comfort conditioning.

## Optional easy-to-use control via PC web browser

With the CMCN, you have the option to control multiple CITY MULTI systems with the AG-150/GB-50ADA/GB-24 Centralized Controller(s) from a PC's web browser. From Internet Explorer® on a PC, the building manager can now monitor, operate, and schedule (daily, weekly, and yearly) the HVAC system through the AG-150/GB-50ADA/GB-24 network. Emails can be automatically generated when an abnormal condition is detected on the system with the source address and the error code. The building manager can enable tenants to control their own individual zones via a personal web browser on their networked PC in conjunction with the AG-150 or GB-50ADA centralized controllers.

## Easy installation

The CMCN uses a simple, two-pipe system with simple, non-polar, two-wire control connections. All components are daisy-chained and addressed onto the M-NET communication bus. It all adds up to less labor and materials with quicker installation.

## Single-source control for up to 2,000 indoor units

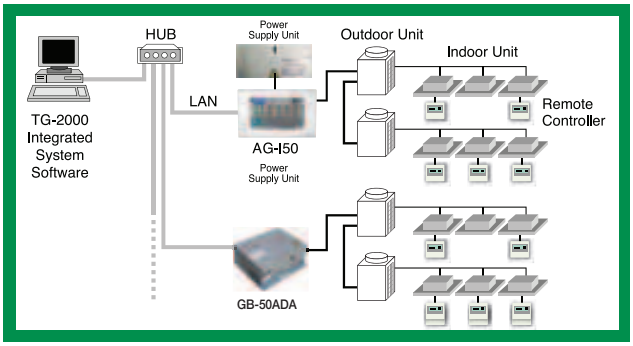
From a single networked PC configured with our TG-2000 software, you can control up to 2,000 units. Our TG-2000 integrated system software provides the ultimate in building management by allowing input of the building's floor plan with illustrative icons for the CITY MULTI indoor units. This software, in conjunction with Centralized Controllers, empowers the building manager to control the HVAC system for multiple buildings in a business park, educational campus, or retirement facility.

## Tenant billing

The TG-2000 software configured with the tenant billing option and interconnected with RS-485 watt-hour meter(s) can calculate the energy consumption relative to each outdoor unit on a per-tenant basis and generate a CITY MULTI energy fee per-tenant.

## System integration

Not only can our CMCN act as a stand-alone building management system, it can also integrate with existing systems via LonWorks® or BACnet® interfaces.




*TG-2000 software manages up to 2,000 indoor units using centralized controllers and software licenses.*

iPhone Screen Shots

## iPhone Mobile Application

The meZO (Mitsubishi Electric Zone) controller App allows for the monitoring and controlling of Mitsubishi Electric HVAC systems. This level of access can be utilized by building or campus managers, maintenance personnel, building owners and homeowners to name a few.

meZO can control CITY MULTI® systems and Mr. Slim® units connected to the M-NET and controlled from one of Mitsubishi Electric's Central Controllers, AG-150, GB-50, GB-50ADA, or GB-24. The iPhone or iPod Touch's Wi-Fi connection allows meZO to communicate to the central controller across a Local Area Network (LAN). Network settings may vary from locations so check with your administrator for any login information that might be needed to access the LAN.

Each indoor unit can be monitored and controlled in terms of:

- On/Off
- Mode
- Set Temperature
- Space Temperature (monitor only)
- Fan Speed
- Vane Direction

meZO is configured through menu-driven settings that support the following:

- Multiple locations
- Multiple controllers per location
- Customizable names for indoor units

(set up may need to be done with support from the installing contractor to create the network access point or assign the indoor unit location names)

* Note that you must press the 'Refresh' button when you are viewing the Controllers to update the indoor unit's settings.

# CENTRALIZED CONTROLLER AG-150

Option: Black surface cover.
PAC-YG71CBL

| Function | Description |
|---|---|
| **Touch Screen** | 9" high resolution color touch screen |
| **Max No. of Indoor Units** | Up to 50 indoor units can be connected |
| **ON/OFF** | On/Off operation for a single group and batch operation |
| **Operation Mode** | Cool/Dry/Auto/Fan/Heat<br>Auto mode is available with only R2 and WR2 systems |
| **Temperature Setting** | Set temperature from 57° F - 87° F depending on operation mode and indoor unit |
| **Fan Speed Setting** | Hi/Mid-2/Mid-1/Low/Auto<br>Available fan speed settings depending on indoor unit |
| **Air Flow Direction Setting** | Air flow angles: 100° - 80° - 60° - 40° and swing<br>Air flow direction settings vary depending on indoor unit model |
| **Permit/Prohibit Function** | Individual prohibit operations for each remote controller function<br>(ON/OFF, Set Temperature, Operation Mode and Filter reset) |
| **Indoor Return Air Temperature** | Displays the measured return air temperature from each group |
| **Error Indication** | Displays a 4 digit code and the affected unit address |
| **Test Run Function** | Allows indoor units to operate in test mode |
| **Ventilation Interlock** | Allows the group to be interlocked with Lossnay unit |
| **Schedule Operation** | Weekly schedule can be set by groups based on operation pattern |
| **External Input/Output** | Inputs: Level Signal-Batch Start/Stop, Batch Emergency Stop<br>Outputs: Start/Stop Status, Error/Normal Status |
| **Power Supply** | PAC-SC51KUA |
| **Dimensions - (W x D x H)** | 11-13/16" x 2-7/16" x 6-7/8" |

## AG-150 Software Options

*(details on optional software on page 67)*

| | |
|---|---|
| SW-Mon | PC monitoring |
| SW-Sch | PC scheduling |
| SW-Email | Error email |
| SW-Maint | Online Maintenance Tool |
| SW-Charge | Tenant billing (requires TG-2000) |
| SW-Pweb | Personal web browser |

## AG-150 Optional Accessories

| *Part Number* | *Description* |
|---|---|
| PAC-YG83UTB | Electric Box (Mounting Bracket) |
| PAC-YG85KTB | AG-150 and Power Supply Surface Mounting Kit |
| PAC-YG81TB | AG-150 Surface Mounting Kit |
| PAC-YG71CBL | Black Surface Cover |

# CENTRALIZED CONTROLLER GB-50ADA

| Function | Description |
|---|---|
| **Max No. of Indoor Units** | Up to 50 indoor units can be connected |
| **ON/OFF** | On/Off operation for a single group and batch operation |
| **Operation Mode** | Cool/Dry/Auto/Fan/ Heat.<br>Auto mode is available with only R2 and WR2 systems |
| **Temperature Setting** | Set temperature from 57˚ F - 87˚ F depending on operation mode and indoor unit |
| **Fan Speed Setting** | Hi/Mid-2/Mid-1/Low/Auto<br>Available fan speed settings depending on indoor unit |
| **Air Flow Direction Setting** | Air flow angles: 100˚ - 80˚ - 60˚ - 40˚ and swing<br>Air flow direction settings vary depending on indoor unit model |
| **Permit/Prohibit Function** | Individual prohibit operations for each remote controller function<br>(ON/OFF, Set Temperature, Operation Mode and Filter reset) |
| **Indoor Return Air Temperature** | Displays the measured return air temperature from each group |
| **Error Indication** | Displays a 4 digit code and the affected unit address |
| **Ventilation Interlock** | Allows the group to be interlocked with Lossnay unit |
| **Schedule Operation** | Weekly schedule can be set by groups based on operation pattern |
| **External Input/Output** | Inputs: Level Signal-Batch Start/Stop, Batch Emergency Stop<br>Outputs: Start/Stop Status, Error/Normal Status |
| **Power Supply** | 100-240 VAC |
| **Dimensions - (W x D x H)** | 9-7/8" x 3-7/8" x 8-9/16" |

## GB-50ADA Software Options *(details on optional software on page 67)*

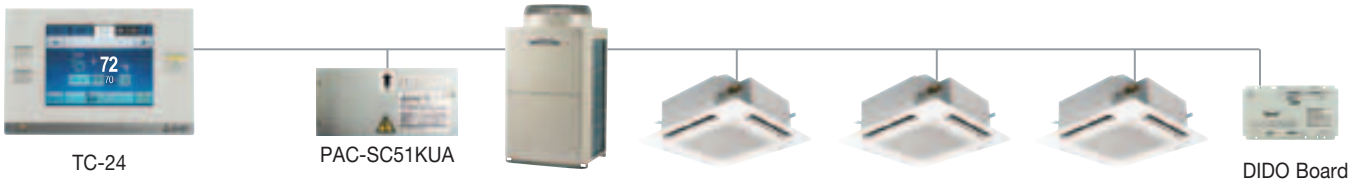
### Pre-Licensed Software

| | |
|---|---|
| SW-Mon | PC monitoring |
| SW-Sched | PC scheduling |
| SW-Email | Error e mail |
| SW-Maint | Online Maintenance Tool |

### Optional Software

| | |
|---|---|
| SW-Charge | Tenant billing (requires TG-2000) |
| SW-Pweb | Personal web browser |

# CENTRALIZED CONTROLLER TC-24




| Function | Description |
|---|---|
| **Max No. of Indoor Units** | Up to 24 indoor units can be connected |
| **ON/OFF** | On/Off operation for a single group and batch operation |
| **Operation Mode** | Cool/Dry/Auto/Fan/ Heat/Setback.<br>Auto mode is available with only R2 and WR2 systems |
| **Temperature Setting** | Set temperature from 57˚ F - 87˚ F depending on operation mode and indoor unit |
| **Fan Speed Setting** | Hi/Mid-2/Mid-1/Low/Auto<br>Available fan speed settings depending on indoor unit |
| **Air Flow Direction Setting** | Air flow angles: 100˚ - 80˚ - 60˚ - 40˚ and swing<br>Air flow direction settings vary depending on indoor unit model |
| **Permit/Prohibit Function** | Individual prohibit operations for each remote controller function<br>(ON/OFF, Set Temperature, Operation Mode and Filter reset) |
| **Indoor Return Air Temperature** | Displays the measured return air temperature from each group |
| **Error Indication** | Displays a 4 digit code and the affected unit address |
| **Ventilation Interlock** | Allows the group to be interlocked with Lossnay unit |
| **Schedule Operation** | Weekly schedule can be set by groups based on operation pattern<br>*requires PC Monitoring (SW-Mon) and PC Scheduling (SW-Sch) |
| **External Input/Output** | Inputs: Level Signal-Batch Start/Stop, Batch Emergency Stop<br>Outputs: Start/Stop Status, Error/Normal Status |
| **Power Supply** | PAC-SC51KUA |
| **Dimensions - (W x D x H)** | 7-8/8" x 1-3/16" x 4-3/4" |

# CENTRALIZED CONTROLLER GB-24

| Function | Description |
|---|---|
| **Max No. of Indoor Units** | Up to 24 indoor units can be connected |
| **ON/OFF** | On/Off operation for a single group and batch operation |
| **Operation Mode** | Cool/Dry/Auto/Fan/ Heat/Setback.<br>Auto mode is available with only R2 and WR2 systems |
| **Temperature Setting** | Set temperature from 57˚ F - 87˚ F depending on operation mode and indoor unit |
| **Fan Speed Setting** | Hi/Mid-2/Mid-1/Low/Auto<br>Available fan speed settings depending on indoor unit |
| **Air Flow Direction Setting** | Air flow angles: 100˚ - 80˚ - 60˚ - 40˚ and swing<br>Air flow direction settings vary depending on indoor unit model |
| **Permit/Prohibit Function** | Individual prohibit operations for each remote controller function<br>(ON/OFF, Set Temperature, Operation Mode and Filter reset) |
| **Indoor Return Air Temperature** | Displays the measured return air temperature from each group |
| **Error Indication** | Displays a 4 digit code and the affected unit address |
| **Ventilation Interlock** | Allows the group to be interlocked with Lossnay unit |
| **Schedule Operation** | Weekly schedule can be set by groups based on operation pattern<br>*requires PC Monitoring (SW-Mon) and PC Scheduling (SW-Sch) |
| **External Input/Output** | Inputs: Level Signal-Batch Start/Stop, Batch Emergency Stop<br>Outputs: Start/Stop Status, Error/Normal Status |
| **Power Supply** | PAC-SC51KUA |
| **Dimensions - (W x D x H)** | 9-7/8" x 1-1/2" x 5-1/8" |

## GB-24 Software Options *(details on optional software on page 53)*

Pre-Licensed Software

| | |
|---|---|
| SW-Mon | PC monitoring |
| SW-Sch | PC scheduling |
| SW-Email | Error email |
| SW-Maint | Online Maintenance Tool |

# CONTROLS NETWORK SPECIFICATIONS

| Model | Local remote controller | | | | AG-150 50 / 50 | | GB-50ADA 50 / 50 | | GB24 24 / 24 | | TC-24 | TG-2000 *4*5 2000 / 2000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PAR21MAA | PAR-F27MEA | PAC-Y151CRB | PAR-FL32MAA | | | | | | | | |
| Controlable Grougs/Indoors (Groups/Indoors) | 1 / 16 | 1 / 16 | 1 / 16 | 1 / 16 | AG-150 | AG-150 | GB-24 | Browser *4 | GB24 | Browser *7 | | |
| ■ Operating | | | | | | | | | | | | |
| ON/OFF | ○ | ○ | ○ | ○ | ◎■ | ◎■ | ▲ | ◎■ | ▲ | ◎■ | ◎■ | ◎■ |
| Mode(cool/heat/dry/fan) | ○ | ○ | ○ | ○ | ◎■ | ◎■ | N | ◎■ | N | ◎■ | ◎■ | ◎■ |
| Temperature | ○ | ○ | ○ | ○ | ◎■ | ◎■ | N | ◎■ | N | ◎■ | ◎■ | ◎■ |
| Local Permit/Prohibit | N | N | N | N | ◎■ | ◎■ | N | ◎■ | N | ◎■ | ◎■ | ◎■ |
| Fan speed | ○ | ○ | ○ | ○ | ◎■ | ◎■ | N | ◎■ | N | ◎■ | ◎■ | ◎■ |
| Air-Flow | ○ | ○ | N | ○ | ◎■ | ◎■ | N | ◎■ | N | ◎■ | ◎■ | ◎■ |
| ■ Status monitoring | | | | | | | | | | | | |
| ON/OFF | ○ | ○ | ○ | ○ | ◎ | ○ | ▲ | ○ | ▲ | ○ | ○ | ◎■ |
| Mode(cool/heat/dry/fan) | ○ | ○ | ○ | ○ | ○ | ○ | N | ○ | N | ○ | ○ | ○ |
| Temperature | ○ | ○ | ○ | ○ | ○ | ○ | N | ○ | N | ○ | ○ | ○ |
| Local Permit/Prohibit | ○ | ○ | ○ | ○ | ○ | ○ | N | ○ | N | ○ | ○ | ○ |
| Fan speed | ○ | ○ | ○ | ○ | ○ | ○ | N | ○ | N | ○ | ○ | ○ |
| Air-Flow | ○ | ○ | N | ○ | ○ | ○ | N | ○ | N | ○ | ○ | ○ |
| Indoor temperature | ○ | ○ | N | N | ○ | ○ | N | ○ | N | ○ | ○ | ○ |
| Filter design | ○ | ○ | N | N | ○ | ○ | N | ○ | N | ○ | ○ | ○ |
| Error flashing | ○ | ○ | ○ | ○ | ○ | ○ | ▲ | ○ | ▲ | ○ | ○ | ◎■ |
| Error code | ○ | ○ | ○ | N | ○ | ○ | N | ○ | N | ○ | ○ | ○ |
| Operation hour | N | N | N | N | N | N | N | ○ | N | ○ | ○ | ● |
| ■ Scheduling | | | | | | | | | | | | |
| One-day | ○ | ○ | N | N | N | ● | N | ● | N | ● | ● | ● |
| Times of ON/OFF per day | 8 | 1/1 | N | 1/1 | 24 | 24 | N | 24 | N | 12 | 12 | 12 or 24 |
| Weekly | ○ | N | N | N | ○ | ● | N | ● | N | ● | ● | ● |
| Times of ON/OFF per week | 8x7 | N | N | N | 24x7 | 24x7 | N | 24x7 | N | 12x7 | 12x7 | 12x7 or 24x7 |
| Annual | N | N | N | N | N | ● | N | ● | N | ● | ● | ● |
| Auto-off timer | ○ | ○ | N | N | N | N | N | N | N | N | N | N |
| Min. timer setting unit(minute) | 1 | 10 | N | 10 | 1 | 1 | N | 1 | N | 1 | 1 | 1 |
| ■ Recording | | | | | | | | | | | | |
| Error record | N | N | N | N | ○ | ○ | N | ○ | N | ○ | ○ | ○ |
| Daily/monthly report | N | N | N | N | N | N | N | N | N | N | N | ◎ |
| Electricity charge | N | N | N | N | N | N | N | N | N | N | N | ● |
| ■ Other | | | | | | | | | | | | |
| Temperature-set limitation | ○ | ○ | ○ | N | N | ○*2 | N | ○*2 | N | ○*2 | ○*2 | ○ |
| Auto-lock | ○ | ○ | N | N | N | N | N | N | N | N | N | N |
| ■Management (Group/Interlocked) | | | | | | | | | | | | |
| Ventilation interlock | N/○ | N/○ | N/○ | N | ○ | ○/○*2 | N | ○/○*2 | N | ○/○*2 | ○ | ○/○ |
| Group setting | ○*1 | ○ | ○*1 | N | ○ | ○*2 | N | ○*2 | N | ○*2 | ○ | ○ |
| Block setting | N | N | N | N | ○ | ○*2 | N | ○*2 | N | ○*2 | ○ | ○ |
| Revision of electricity charge | N | N | N | N | N | N | N | N | N | N | N | □● |
| ■ Operating on LOSSNAY interlocked (Group/Interlocked) | | | | | | | | | | | | |
| ON/OFF | N/○ | N/○ | N/○ | N/○ | ◎/◎ | ◎/◎ | ▲/▲ | ◎/◎ | ▲/▲ | ◎/◎ | ◎/◎ | ◎/◎ |
| Fan speed | N/○ | N/○ | N | N | ◎/◎ | ◎/◎ | N/N | ◎/◎ | N/N | ◎/◎ | ◎/◎ | ◎/◎ |
| Ventilation mode | N/N | N | N | N | ◎/N | ◎/N | N/N | ◎/N | N/N | ◎/N | ◎/N | ○/N |
| ■ Status monitoring on LOSSNAY interlocked (Group/Interlocked) | | | | | | | | | | | | |
| ON/OFF | N/○ | N/○ | N | N | ◎/◎ | ◎/◎ | ▲/▲ | ◎/◎ | ▲/▲ | ◎/◎ | ◎/◎ | ◎/○ |
| Fan speed | N/○ | N/○ | N | N | ○/○ | ○/○ | N/N | ○/○ | N/N | ○/○ | ○/○ | ○/○ |
| Ventilation mode | N | N | N | N | ○/N | ○/N | N/N | ○/N | N/N | ○/N | ○/N | ○/N |

◎: Each group/Batched
●: GB50ADA license registration possible
▲: Batched handling (for maintenance)
○: Each Group
□: BLOCK (for CITY MULTI Indoor unit, not for all Mr. Slim
N: Not available (not used)
■: BLOCK
△: Batched only

*1 Group setting via wiring between indoor units with cross-over cable;
*2 Installation possible at initial setting web browser;
*3 Inter-lock is set at local remote controller.
*4 AG-150/GB-50ADA lisence registration to GB-50ADA is required to monitor and operate the units by browser and TG-2000.
*5 AG-150 license registration to AG-150 is required to monitor and operate the units by browser and TG-2000.
*6 This function can be set only on the remote controller. This function cannot be used with System controller
*7 GB-24 license registration is required to monitor and operate the units by browser .

**Specifications are subject to change.**

The Centralized Controllers support operations that supersede control of the remote controllers and include system configuration, daily/weekly scheduling, operation, and malfunction monitoring. All Centralized Controllers are equipped with an RJ-45 Ethernet port to support interconnection with a networked PC via a closed/direct Local Area Network (LAN). Software functions are available so that the building manager can securely log into each Centralized Controller via the PC's web browser to support operation monitoring, daily/weekly/yearly scheduling, error email distribution, personal browser, and maintenance diagnostics.

Software functions for the PC include web monitoring, web scheduling, error email, personal browser, online maintenance tool, tenant billing (requires TG-2000 on dedicated PC) and BACnet (requires dedicated PC). The optional software functions are licensed per Centralized Controller.

## PC monitoring (SW-Mon)

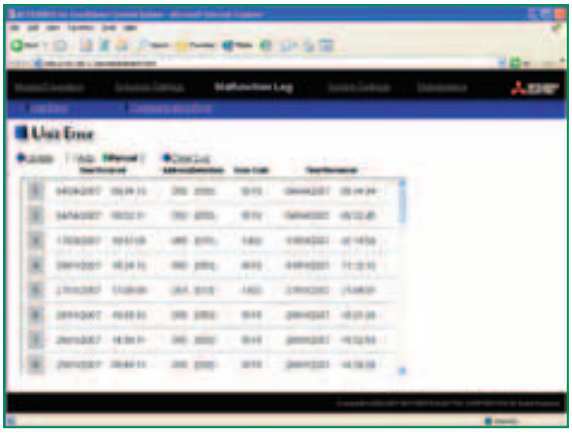
This feature enables the building manager to easily monitor and operate all 50 units from the PC's browser.

## PC scheduling (SW-Sch)

This function enables the building manager to customize daily, weekly, and yearly schedules for all 50 units. Schedules can be applied to a single unit, a group of units, or collectively (batch) to all units.

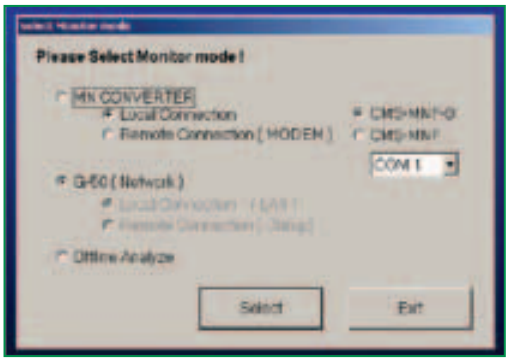
## Error email (SW-Email)

If an error occurs on the CITY MULTI system monitored by the Centralized Controller, the fault will be detected and isolated, and a detailed alert will be sent to the necessary personnel via real-time email. The user can then view and clear the error logs from the PC and use the information for troubleshooting.



## Online maintenance tool (SW-Maint)

This capability performs maintenance diagnostics via a network PC, the Centralized Controller and Maintenance Tool software *(see page 60 for more details on Maintenance Tool software)*.



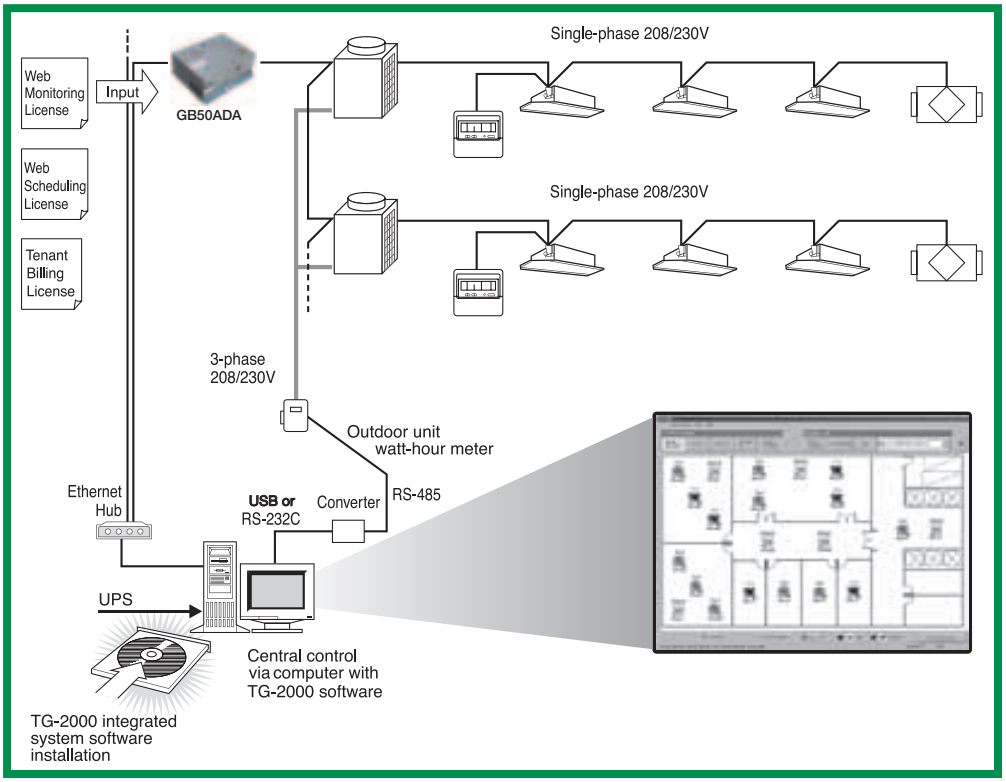

## Individual personal browser via PC web browser (SW-Pweb)

This innovation allows individual users to control their zone conditioning via personal networked PC's with or without remote controllers. Personal web browser is only supported on AG-150 and GB-50ADA Centralized Controllers.

# TG-2000™ INTEGRATED SYSTEM SOFTWARE

The TG-2000 integrated system software enables the user to control multiple AG-150/GB-50ADA controllers and provide enhanced functions from a single, dedicated networked PC configured with the TG-2000 software and AG-150/GB-50ADA software licenses. The TG-2000 configured PC is capable of controlling up to 2,000 indoor units with the AG-150/GB-50ADA Centralized Controllers.

Additional software features are available through the TG-2000 software including tenant billing.

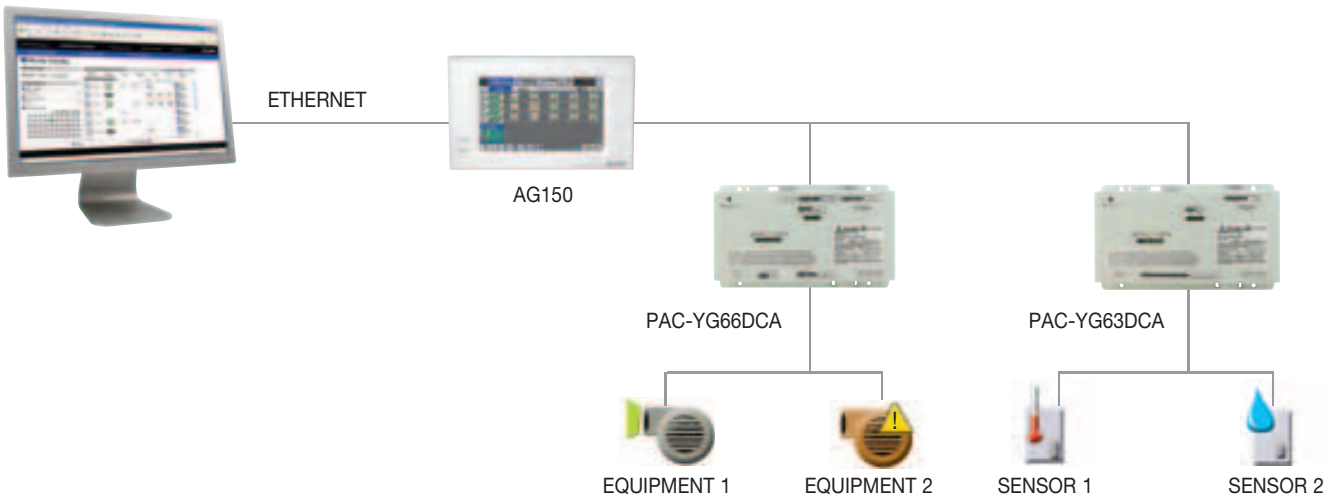



## Tenant billing

(requires AG-150, GB-50ADA and SW Change software lisence)

The tenant billing function of TG-2000 will output the HVAC energy consumption fee in kWh and monetary amount for the CITY MULTI outdoor unit(s) divided among defined blocks of indoor units. The tenant billing function requires that a RS-485 WHM monitor the energy consumption of one or more CITY MULTI outdoor units and be interconnected to the TG-2000 computer via a RS-485/RS-232C or RS-485/USB converter. The tenant billing output can be sent directly to a networked printer and/or to a destination folder on the TG-2000 PC as an Excel® file. This tenant billing output can then be input into an Excel-based support tool to generate an individual *HVAC Energy Fee* per tenant. The format of this *HVAC Energy Fee* can be customized.

# I/O CONTROL BOARD




## PAC-YG66DCA Digital Input Digital Output (DIDO) Control Board

The DIDO controller used in conjunction with a AG-150, GB-50ADA, GB-24 or TC-24 Centralized Controller can control and monitor third–party general equipment.

| Function | Description |
|---|---|
| **Inputs** | Qty 2 digital inputs (non-voltage contacts) |
| **Outputs** | Qty 2 digital outputs (non-voltage relay contact)<br>Use only VDC with outputs |
| **Monitor** | Status, Fault<br>Requires AG-150, GB-50ADA, GB-24 or TC-24 Centralized Controller |
| **Control** | On/Off, Start/Stop, Enable/Disable<br>Requires AG-150, GB-50ADA, GB-24 or TC-24 Centralized Controller |
| **Schedule Operation** | Weekly schedule can be set by groups based on operation pattern<br>Requires AG-150, GB-50ADA, GB-24 or TC-24 Centralized Controller |
| **Interlock Function** | Interlock M-NET devices and output contacts according to status of input contacts |
| **Power Supply** | 24 VDC (5W plus loads) |
| **Communication** | M-NET |
| **Dimensions - (W x D x H)** | 7-7/8" x 1-13/16" x 4-3/4" |

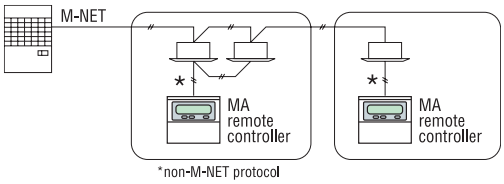
## PAC-YG63MCA Analog Input (AI) Control Board

The AI controller used in conjunction with a AG-150, GB-50ADA, or GB-24 Centralized Controller can monitor and trend temperature and humidity from a field supplied temperature or humidity sensor.

| Function | Description |
|---|---|
| **Inputs** | Qty 2 digital inputs (0/10 VDC, 4/20 mA, 1-5 VDC) |
| **Monitor** | Temperature and/or Humidity<br>Requires AG-150, GB-50ADA, or GB-24 Centralized Controller and field supplied sensor |
| **Interlock Function** | Interlock M-NET devices and output contacts according to measured values on inputs |
| **Alarms** | Generate alarm based on user defined high and low limits |
| **Power Supply** | 24 VDC (5W) |
| **Communication** | M-NET |
| **Dimensions - (W x D x H)** | 7-7/8" x 1-13/16" x 4-3/4" |

## Deluxe MA Remote Controller (PAR-21MAA)

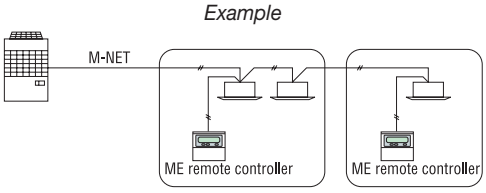
*Example*




- Features user-friendly multilingual operation and monitoring
- Controls up to 16 indoor units in a single group
- User Functions: Allows user to set:
  - On/Off
  - operation modes of Cool, Heat, Dry, Fan, or Auto (R2-Series only), ventilation
  - set temperature from 57° F – 87° F, depending on operation mode and indoor unit
  - fan speed setting
  - airflow direction
- Timer Operation: Supports Weekly Timer operation (On/Off/Set Temperature). Supports Auto-Off Timer
- Room Temperature: Displays room temperature sensed either at the Remote Controller or at the indoor unit
- Set Temperature Range Limit: Reduces the allowable set temperature range in Cool or Heat modes from Remote Controller
- Function Lock Out: Prohibits all functions or all functions except On/Off
- Diagnostics: Displays four-digit error code
- Grouping: Can only be used in same group with other PAR-21MAA Deluxe MA Remote Controllers and PAC-YT51 Simple MA remote controllers, with up to two remote controllers per group
- Addressing: No addressing required
- Wiring: Connects using two-wire, stranded, non-polar control wire to TB15 connection terminal on the indoor unit Requires cross-over wiring for grouping across indoor units
- Dimensions: 5-1/8" x 3/4" x 4-3/4"

## ME Remote Controller (PAR-F27MEA)

*Example*

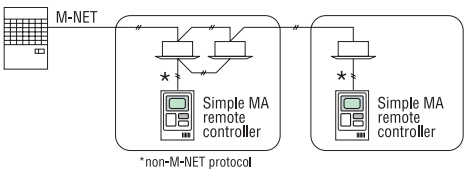



- Features user-friendly operation and monitoring
- Controls up to 16 indoor units in a single group
- User Functions: Allows user to set:
  - On/Off
  - operation modes of Cool, Heat, Dry, Fan, or Auto (R2-Series only), ventilation
  - set temperature from 57° F – 87° F, depending on operation mode and indoor unit
  - fan speed setting
  - airflow direction
- Timer Operation: Supports repeated daily timer operation of one On/Off setting repeated every day and an Auto-off timer
- Room Temperature: Displays room temperature sensed either at the Remote Controller or at the indoor unit
- Set Temperature Range Limit: Reduces the allowable set temperature range in Cool or Heat modes from Remote Controller or PC
- Function Lock-Out: Prohibits all functions or all functions except On/Off
- Diagnostics: Displays four-digit error code and error unit address
- Grouping: Can be used only in same group with a total of two PAR-F27MEA (ME Remote Controllers) per group
- Addressing: Requires manual addressing using rotary dial switch to the M-NET communication bus
- Wiring: Connects using two stranded, non-polar control wires to TB5 connection terminal on the indoor unit
- Dimensions: 5-1/8" x 3/4" x 4-3/4"

## Simple MA Remote Controller (PAC-YT51CRB)

- Features user-friendly operation and monitoring
- Controls up to 16 indoor units in a single group
- User Functions: Allows user to set:
  - On/Off
  - operation modes of Cool, Heat, Dry, Fan, Auto (R2-Seriesonly), Ventilation
  - fan speed setting
  - set temperature from 57° F - 87° F, depending on operation mode and indoor unit
- Grouping: Can be used only in same group with other PAC-YT51 (Simple MA Remote Controller) and PAR-21MAA (Deluxe MA Remote Controller) with up to two remote controllers per group
- Addressing: No addressing required
- Set Temperature Range Limit: Reduces the allowable set temperature range in Cool or Heat modes from Remote Controller
- Diagnostics: Displays four-digit error code and error unit address
- Wiring: Connects using two stranded, non-polar control wires to TB15 connection terminal on the indoor unit Requires crossover wiring for grouping across indoor units
- Dimensions: 2-3/4" x 1-5/8" x 4-3/4"

*Example*



## Wireless MA Remote Controller (PAR-FL32MA) and Receiver (PAR-FA32MA)

(Receiver (PAR-FA32MA) not shown)

- Features user-friendly operation and monitoring
- Controls up to 16 indoor units in a single group
- User Function: Allows user to set:
  - On/Off
  - operation modes of Cool, Heat, Dry, Fan or Auto (R2-Series only)
  - set temperature from 57˚ F – 87˚ F, depending on operation mode and indoor unit
  - fan speed setting
  - airflow direction
- Grouping: Can be used only in same group with PAC-YT51 (Simple MA Remote Controller), PAR-21MAA (Deluxe MA Remote Controller), and other PAR-FL32MA (Wireless MA Remote Controllers)
- Addressing: No addressing required
- Wiring: Connects using two stranded, non-polar control wires to TB15 connection terminal on the indoor unit. Requires crossover wiring for grouping across indoor units
- Dimensions: Remote (2-5/16" x 3/4" x 5-1/4"), Receiver (2-3/4" x 7/8" x 4-12/16")

## On/Off Controller (PAC-YT40ANRA)

- On/Off Control for up to 16 Groups (max. of 50 indoor units)
- Collective On/Off Button turns all units on/off; collective LED displays if any units are on, off, or in error
- Individual On/Off Button for 16 groups of indoor units; Turns individual group on/off; Individual LED displays if any units in the group are on, off, or in error
- Diagnostics: Flashing LED indicates error. Displays four-digit error code
- Addressing: Requires manual addressing using rotary dial switch to the M-NET communication bus (default address is 201)
- Wiring: Connects to TB7 connection terminal on outdoor unit via PAC-SC50KUA power supply or connects to TB3 connection terminal on outdoor unit
- Dimensions: 5-1/8" x 3/4" x 4-3/4"
- Recommended to be used in conjunction with PAR-21MAA Deluxe MA Remote Controllers or PAR-F27MEA ME Remote Controllers for temperature and mode setting
- Expandability: External input signal can be used for batch operation such as Emergency Stop, On/Off, or On/Off plus prohibit of local remote controller operation, external output signal for collective operation state or error state

## Schedule Timer (PAC-YT34STA)

- Schedules up to 50 indoor units. Maximum number of indoor units per one group is 16. Maximum number of groups is 50
- Use only in conjunction with PAR-21MAA (Deluxe MA Remote Controllers) or PAR-F27MEA (ME Remote Controllers)
- Scheduling: Supports up to nine patterns with up to 16 operations per pattern; operations include On/Off, mode selection (Cool, Heat), set temperature, and prohibition of remote controller functions (On/Off, operation mode change, and set temperature adjustment); patterns are applied to each group of indoor units on a per-day basis; minimum time interval is five minutes
- Diagnostics: Displays four-digit error code and error unit address
- Addressing: Requires manual addressing using rotary dial switch to the M-NET communication bus.
- Wiring: Connects to TB7 connection terminal on outdoor unit with the PAC-SC50KUA power supply or connects to TB3 connection terminal on outdoor unit
- Dimensions: 5-1/8" x 3/4" x 4-3/4"
- Expandability: Can be used in conjunction with AG-150 Centralized Controller, which has higher priority but requires change in dip-switch setting. Can be used in conjunction with external input/output signals

# SYSTEM INTEGRATION: LONWORKS® AND BACNET®

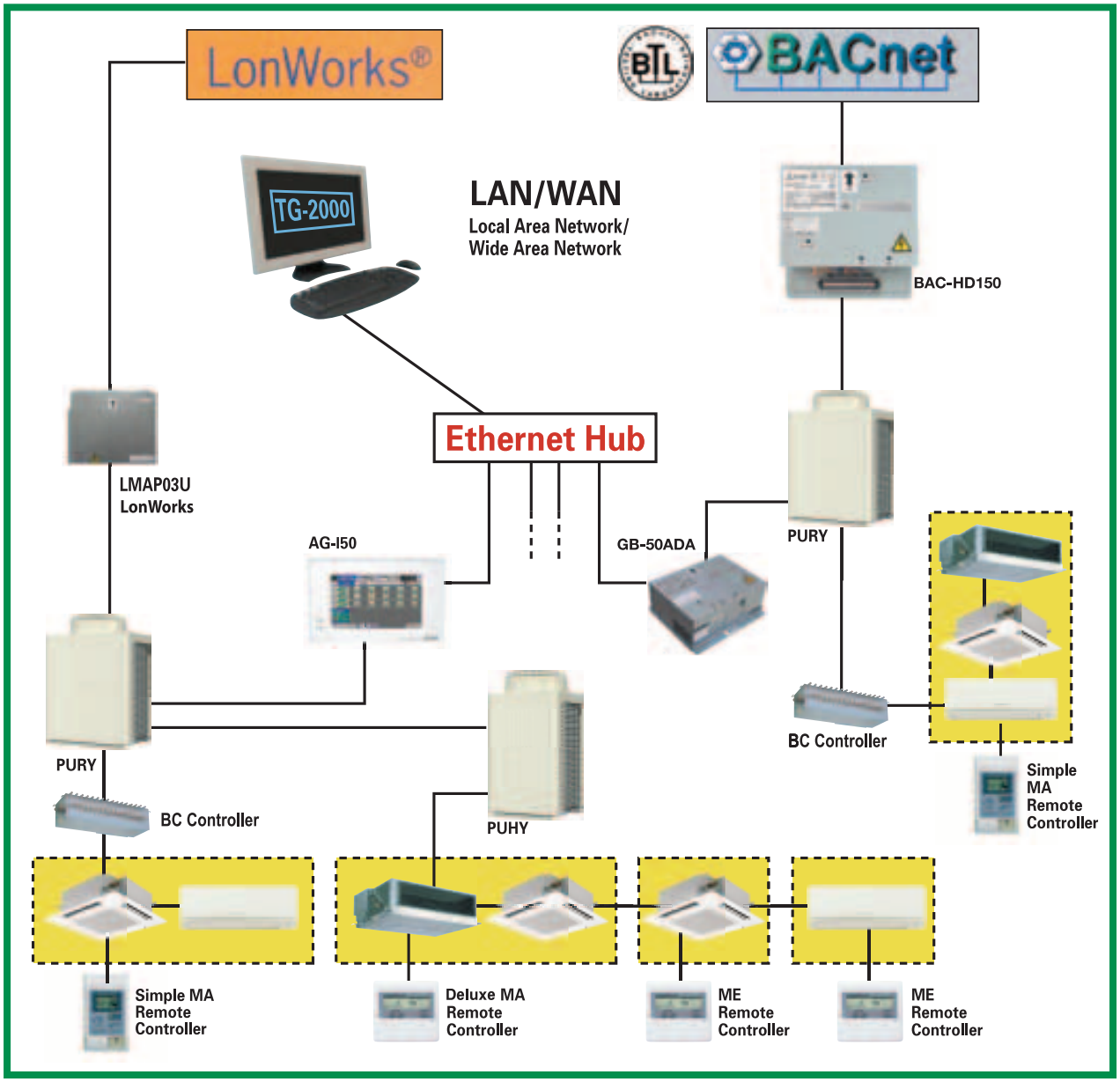
The CMCN supports integration with Building Management Systems (BMS) via our LonWorks® and BACnet® interfaces.

## LonWorks® Interface

The Mitsubishi Electric HVAC LonWorks® interface, LMAP03U, supports up to 50 indoor units with a variety of network variables on a per indoor unit basis. Input variables include, but are not limited to: On/Off, Operation Mode, Fan Speed, Prohibit Remote Controller, and Filter Sign Reset. Output variables include but are not limited to: Model Size, Alarm State, Error Code, and Error Address.

## BACnet® Interface

The Mitsubishi Electric HVAC BACnet® gateway, BAC-HD150, is compliant with BACnet®/IP (ANSI/ASHRAE 135-2004) and is BTL® Listed. Each BAC-HD150 can support up to 50 indoor units with a variety of object types. Operation and monitoring points available include ON/OFF, mode, space temperature set point, prohibition of remote controller functions, error codes and alarms.



# Lossnay energy recovery ventilators provide outdoor air solutions for indoor environmental quality.

See the Lossnay Technical Brochure for complete information.

| Model | CFM | Model | CFM |
|---|---|---|---|
| LGH-F300RX3-E | 300 | LGH-F470RX3-E | 470 |
| LGH-F600RX3-E | 600 | LGH-F1200RX3-E | 1,200 |

Improved sound attenuation makes Lossnay® units quiet enough for places where silence is a must, such as meeting rooms and libraries. A free-cooling function is standard to help reduce costs and boost efficiency. The integrated bypass damper design makes installation and system management quick and efficient.

## Interlock simply, effectively, and economically

Because the M-NET adapter comes as standard equipment, networking systems connected with Mitsubishi Electric air conditioners has never been easier. There is no need to purchase additional parts. Systems can be assembled simply and logically, reducing construction times and keeping initial costs low.

PZ-41SLB-E

## Bypass auto ventilation standard

Lossnay models offer three ventilation modes:

- Energy Recovery - Heat Exchange
- Bypass - No Exchange
- Automatic - Heat Exchange/Bypass

With conventional ERVs, bypass ventilation was impossible without attaching additional dampers and adapters. With the LGH-F-RX3-E series, however, this mode is available without the use of other parts. An automatic mode allows the system to select recovery or bypass as required. Mode selection is easy when interlocked with M-NET systems using the PZ-52SF remote controller, which is sold separately. When using Lossnay independently, the separately sold PZ-41SLB remote controller provides mode selection.

## System compatibility

The LGH-F-RX3-E series is fully compatible with Mitsubishi Electric's TG-2000 software, LMAP LonWorks® interface and BACnet® interface, further increasing the scope of total system management.

## Multi-function LCD remote controller

These ERV remote controllers are compact and attractive. In addition to controls for ON/OFF, Run mode, and Ventilation mode, the time period for filter maintenance is also displayed. The liquid crystal display has been designed for easier visibility. The Lossnay M-NET controller, model PZ-52SF-E, can control up to 16 Lossnay units in a single group.

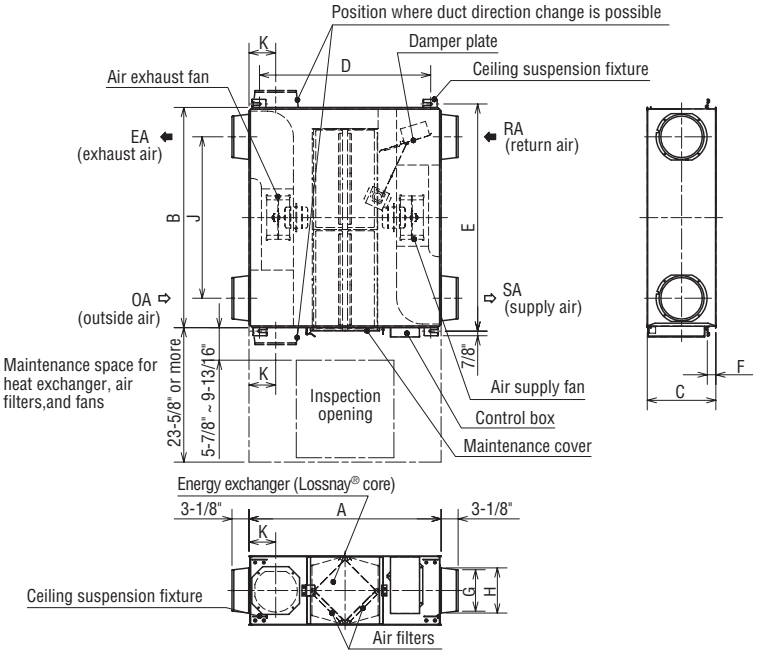
PZ-52SF-E

# LOSSNAY ENERGY® SPECIFICATIONS

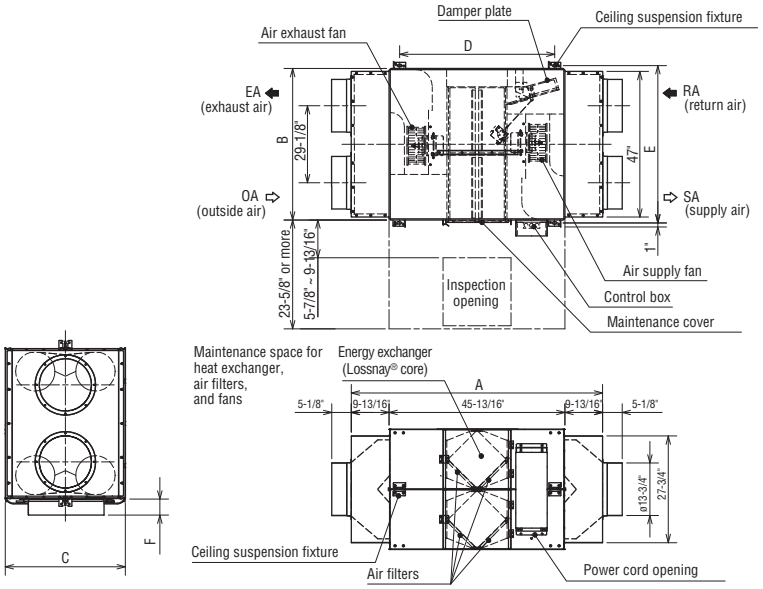
| Model Name | | LGH-F300RX3-E | | | LGH-F470RX3-E | | |
|---|---|---|---|---|---|---|---|
| Power supply | | Single-phase 208/230V 60Hz | | | Single-phase 208/230V 60Hz | | |
| Fan Speed | | Extra high | High | Low | Extra high | High | Low |
| Current (A) | | 1.3 | 1.1 | 0.6 | 2.5 | 2.4 | 1.7 |
| Power consumption (W) | | 278 | 260 | 146 | 560 | 525 | 375 |
| Air volume (CFM) | | 300 | 300 | 180 | 470 | 470 | 380 |
| External static pressure (in. H2O) | | 0.65 | 0.10 | 0.02 | 0.96 | 0.78 | 0.51 |
| Temperature recovery efficiency (%) | | 69 | 70 | 77 | 69 | 69 | 72 |
| Enthalpy recovery efficiency (%) | Heating | 62 | 64 | 71 | 62 | 62 | 65 |
| | Cooling | 44 | 46 | 55 | 44 | 44 | 48 |
| Sound level (dB[A]) | Measured 59 in. under center of panel | 36 | 32 | 25 | 39 | 37 | 31.5 |
| | Air Outlets | 44 | 40 | 31 | 50.5 | 48.5 | 40.5 |
| Filter | | Washable filter (4) | | | | | |
| Starting current | | Under 14A | | | | | |

| Model Name | | LGH-F600RX3-E | | | LGH-F1200RX3-E | | |
|---|---|---|---|---|---|---|---|
| **Power supply** | | **Single-phase 208/230V 60Hz** | | | **Single-phase 208/230V 60Hz** | | |
| **Fan Speed** | | **Extra high** | **High** | **Low** | **Extra high** | **High** | **Low** |
| **Current (A)** | | **2.9** | **2.6** | **1.7** | **5.7** | **5.6** | **3.6** |
| **Power consumption (W)** | | **654** | **600** | **310** | **1290** | **1200** | **810** |
| **Air volume (CFM)** | | **600** | **600** | **430** | **1200** | **1200** | **800** |
| **External static pressure (in. H2O)** | | **0.80** | **0.48** | **0.24** | **0.75** | **0.43** | **0.20** |
| **Temperature recovery efficiency (%)** | | **69** | **70** | **75** | **69** | **70** | **76** |
| **Enthalpy recovery efficiency (%)** | **Heating** | **62** | **63** | **69** | **62** | **63** | **69** |
| | **Cooling** | **44** | **47** | **53** | **44** | **47** | **53** |
| **Sound level (dB[A])** | **Measured 59 in. under center of panel** | **39** | **37** | **30** | **41** | **39** | **32** |
| | **Air Outlets** | **47** | **45** | **37** | **52** | **49** | **41** |
| **Filter** | | **Washable filter (4)** | | | | | |

| Model | Dimensions | | | Ceiling suspension fixture pitch | | | Nominal diameter | Duct connecting flange | | Duct pitch | | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | | G | H | J | K | |
| LGH-F300RX3-E | 34-15/16 | 40 | 12-1/2 | 31-1/8 | 41-1/4 | 1-9/16 | ø8 | ø7-9/16 | ø8-3/16 | 29-5/16 | 4-7/8 | 73 lb |
| LGH-F470RX3-E | 45-13/16 | 39-1/2 | 15-11/16 | 40-9/16 | 40-13/16 | 3/8 | ø10 | ø9-1/2 | ø10-3/16 | 27-3/16 | 5-7/8 | 143 lb |
| LGH-F600RX3-E | 45-13/16 | 48-7/16 | 15-11/16 | 40-9/16 | 49-3/4 | 3/8 | ø10 | ø9-1/2 | ø10-3/16 | 36-3/16 | 5-7/8 | 159 lb |

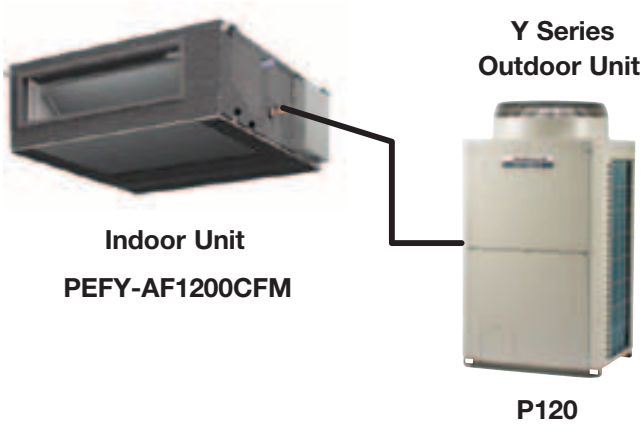


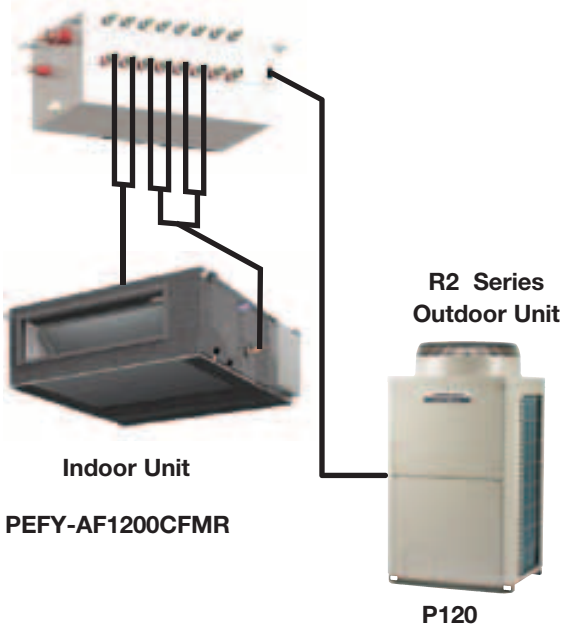

| Model | Dimensions | | | Ceiling suspension fixture pitch | | | Nominal diameter | Duct connecting flange | | Duct pitch | | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | | G | H | J | K | |
| LGH-F1200RX3-E | 65-7/16 | 48-7/16 | 31-1/2 | 40-9/16 | 50-1/8 | 8-3/4 | ø14 | ø13-3/4 | 29- 1/8 | 395 lb | 4-7/8 | 73 lb |



# Dedicated Outdoor Air System (DOAS) without reheat and with with reheat

The PEFY-AF Dedicated Outside Air System comes in two configurations, the CFM and the CFMR. Both configurations offer a high capacity coil that will condition incoming outside air, making it suitable to be distributed to down–stream fan coil units.




## CITY MULTI DOAS without reheat consists of:

- One PEFY-AF1200CFM indoor unit
- One PUHY-P120TJMU or PUHY-P120YJMU outdoor unit
- One PAR-21MAA wired remote controller and/or centralized control

## PEFY-AF1200CFM (For use with the PUHY-P120):

- Large DX coil with high latent capacity
- Entering air temperature and humidity sensors factory installed
- 50° F to 70° F saturated air available in cooling mode
- Multiple external static pressure setpoints up to 1.04"
- Single-speed 1200 CFM fan
- Thin 18-9/16" high cabinet installs in small areas
- Drain lift mechanism up to 21-11/16" included as standard

## CITY MULTI DOAS with reheat consists of:

- One PEFY-AF1200CFMR indoor unit
- One PURY-P120TJMU or PURY-P120YJMU outdoor unit
- One CMB-P106NU-G or CMB-P108NU-G branch controller
- One PAR-21MAA wired remote controller and/or centralized control

## PEFY-AF1200CFMR (For use with the PURY-P120):

- Reheat capabilities using recovered energy from cooling through the branch controller
- Two DX coils for both cooling and reheating outside air
  - Primary coil: Large DX coil with high latent capacity
  - Secondary coil: Smaller coil for providing heating or reheating
- Multiple external static pressure setpoints up to 0.96"
- Single-speed 1200 CFM fan
- Thin 18-9/16" high cabinet installs in small areas
- Drain lift mechanism up to 21-11/16" included as standard

| Model | | | PEFY-AF1200CFM | PEFY-AF1200CFMR |
|---|---|---|---|---|
| Power Source | | | 208/230V, 1-phase, 60Hz | |
| Cooling Capacity *1 | | Btu/h | 112,000 | 112,000 |
| Heating Capacity *1 | | Btu/h | 61,400 | 61,400 |
| Reheat Capacity | | Btu/h | - | 24,200 |
| Power Consumption | Cooling | W | 660 / 780 | |
| | Heating | W | 660 / 780 | |
| Current | Cooling | A | 3.19 / 3.45 | |
| | Heating | A | 3.19 / 3.45 | |
| External Finish | | | Galvanized-steel Sheets | |
| Dimensions | Height | In. | 18-9/16 | |
| | Width | In. | 49-1/4 | |
| | Depth | In. | 55-1/8 | |
| Net Weight | Unit | Pounds | 287 | 309 |
| Heat Exchanger | | | Cross Fin (Aluminum Fin and Copper Tube) | |
| Fan | Type x Quantity | | Sirocco x 2 | |
| | Airflow Rate *2 | CFM | 1,200 | |
| | External Static Pressure *3 | In.WG | 0.40 - 0.60 - 0.88 (208V) | 0.28 - 0.48 - 0.80 (280V) |
| | | | 0.64 - 0.80 - 1.04 (230V) | 0.52 - 0.72- 0.96 (230V) |
| | Motor Type | | Singe-phase Induction Motor | |
| | Motor Output | W | 620 / 740 | |
| Air Filter | | | Field Supplied | |
| Main Coil Refrigerant Pipe Dimensions | Low Pressure (Brazed) | In. | 7/8 | |
| | High Pressure (Brazed) | In. | 3/8 | |
| Reheat Coil Refrigerant Pipe Dimensions | Low Pressure (Brazed) | In. | - | 7/8 |
| | High Pressure (Brazed) | In. | - | 3/8 |
| Drainpipe Dimensions (O.D.) | | In. | 1-1/4 x 2 | |
| Sound Pressure Levels *3 | Low-Mid-High | dB(A) | 36 - 38 - 41 (208V) | |
| | | | 39 - 41 - 43 (230V) | |
| Operating Temperature Range | Cooling | | 50° F WB to 95° F WB (109° F DB)<br>(10°C WB to 35°C WB [43°C DB]) | |
| | Heating | | -4° F WB to +60° F WB<br>(-20°C WB to +16°C WB) | |
| Connectable Outdoor Units | | | PUHY-P120TJMU (-BS),<br>PUHY-P120YJMU (-BS)<br>PUHY-P120THMU<br>PUHY-P120YHMU | PURY-P120TJMU (-BS),<br>PURY-P120YJMU (-BS)<br>PURY-P120THMU<br>PURY-P120YHMU |

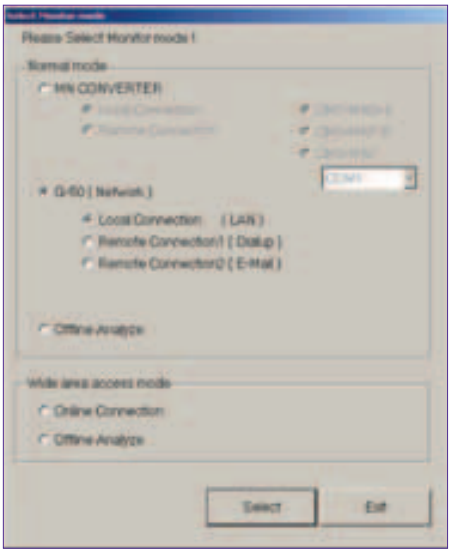
# MAINTENANCE TOOL SOFTWARE OVERVIEW

Mitsubishi's easy-to-use, Windows® based Maintenance Tool software allows technicians to monitor and collect CITY MULTI system data and control various functions of the system for maintenance purposes. System monitoring is accomplished through direct connection between your PC and the M-NET bus line using the MN-Converter or by connecting remotely to a system centralized controller, such as the AG-150 or GB-50ADA via a TCP/IP network, or via a remote dialup connection.

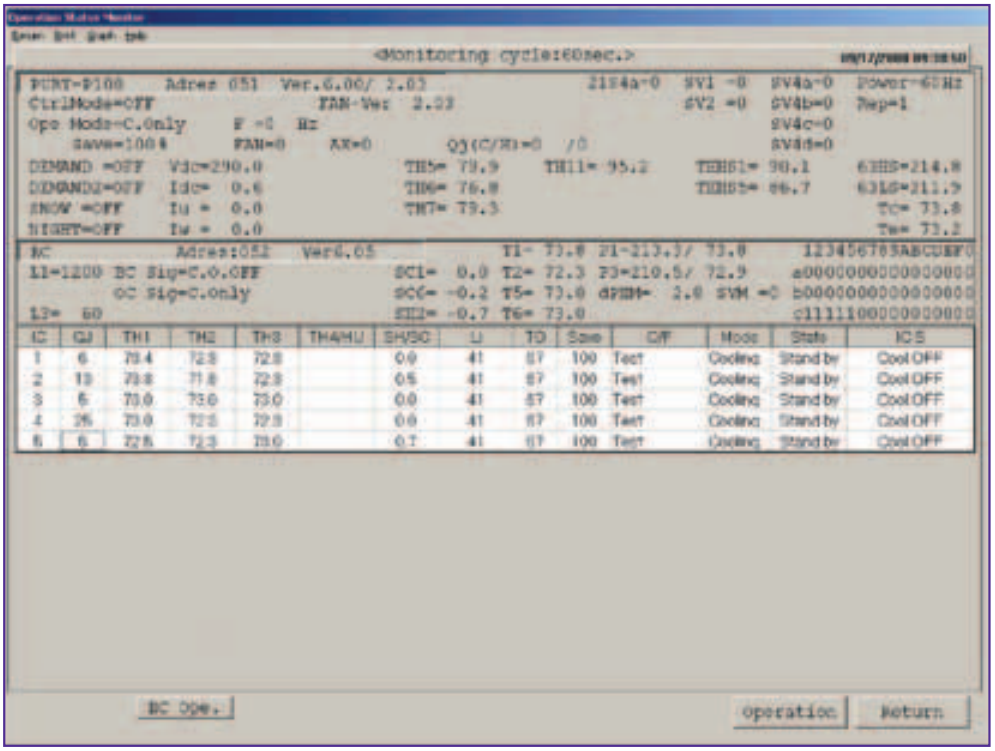
Use Maintenance Tool software to monitor pressure and temperature readings from CITY MULTI system sensors, display and control system LEV settings and display and remotely control all connected indoor units.

Maintenance Tool software also allows the technician to record and save system monitor data for the purposes of trending and system analysis off site as well as display malfunction logs and email error reports to personnel responsible for servicing the system.

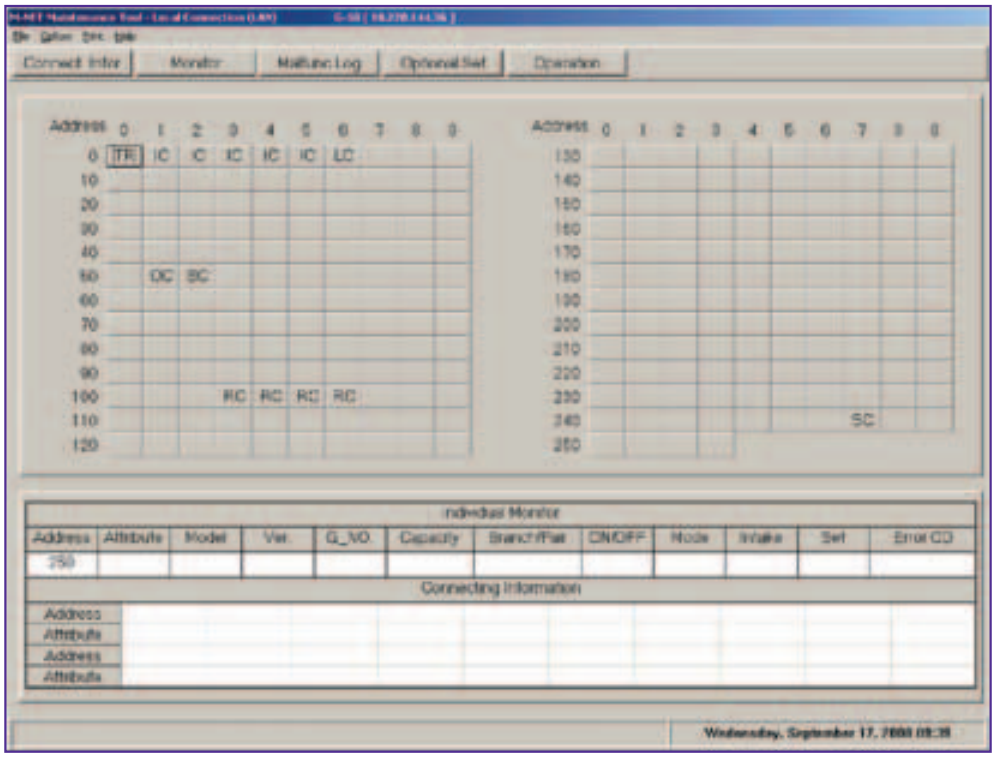
MN Converter (CMS-MNG-E)



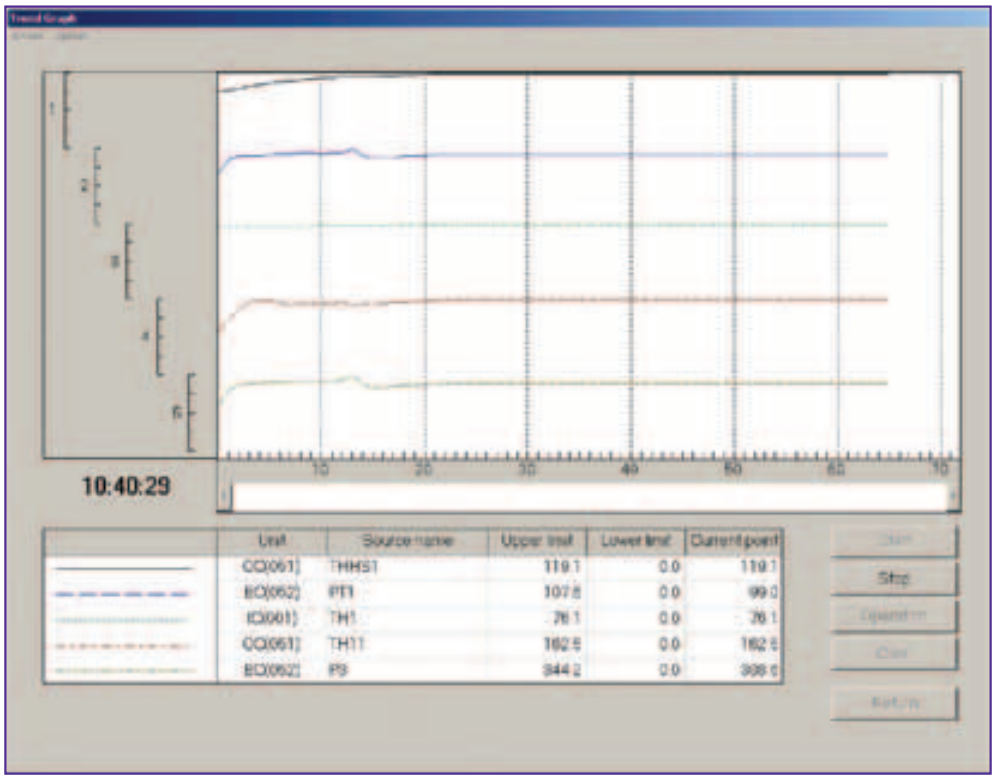

*The mode select screen allows the user to select the method for connection to the CITY MULTI system, whether direct or remotely, or choose to analyze previously recorded data off-line.*




*The operation status monitor screen displays the operational data for the connected system including system pressures, temperatures, LEV settings, compressor frequency, current operational mode, and more. Pre-recorded data can also be viewed in and off-line version of this screen.*



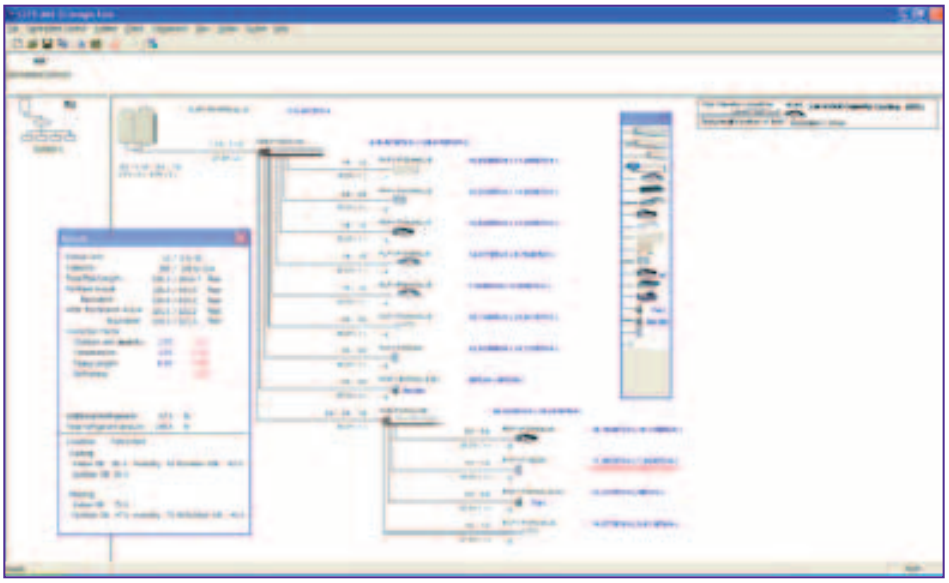

*The system connection information view shows a snapshot of the components connected to the system, identifying each component's type and system address. Through a simple series of clicks, the user can monitor the critical data points for each component, manipulate the control features and operate each component, or view each component's malfunction log.*




*Maintenance Tool allows the user to identify and select specific points to monitor and graph over time for the purposes of data trending and system diagnostics.*

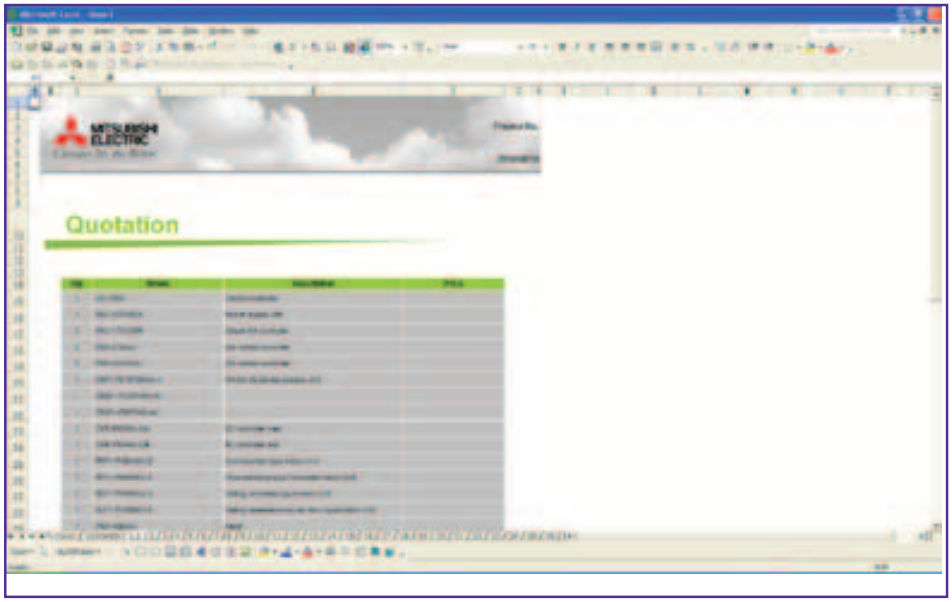
# DESIGN TOOL SOFTWARE OVERVIEW

Mitsubishi's Design Tool software makes designing with CITY MULTI quick and easy. The designer just needs to drag and drop components to complete the design. The program has built–in safeguards against exceeding limitations and shows if there is an error. Assuring line lengths, maximum connected capacities, component selection, control scheme, etc. are within the system requirements.

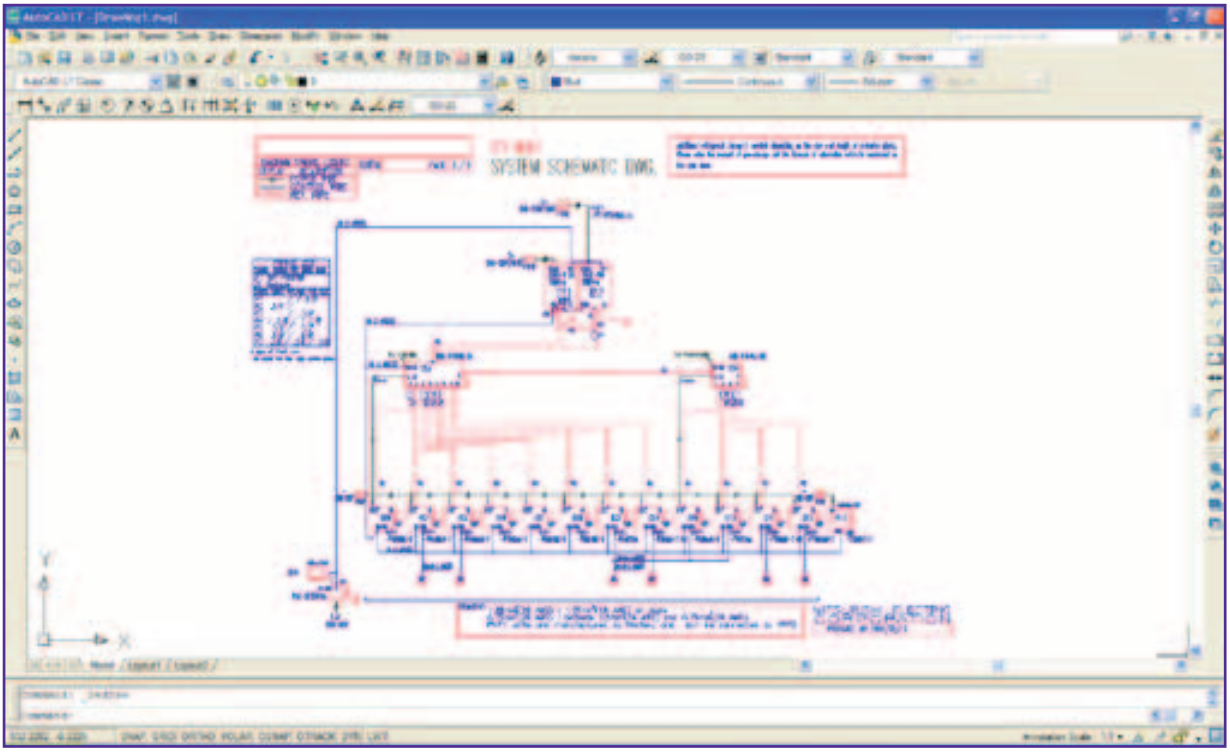


System design conditions such as indoor and outdoor design conditions are easily entered for both heating and cooling. Also, the customer and project name can be entered to identify the job on the outputs.

Similar to the equipment section, the controls and Lossnay ERVs can be set up by selecting their styles and dragging and dropping them into the design. Interlocking component operation is done with
the click of a mouse.




The system is summarized in an Excel (.xls) file. Included are all the design parameters, equipment lists, line sizes, indoor unit operating capacities, additional refrigerant based on line lengths, control scheme with addressing and much, much more. The Excel-based output simplifies quoting a job and tracking equipment lists.



With the help of AutoCAD* or AutoCAD LT* installed on the computer, a schematic (.dwg format) is generated that includes all the requirements to make installation a breeze. Included in the drawing are line sizes, wiring diagrams with indoor units grouped as designed, labels on indoor units, addressing and so much more. The AutoCAD drawing is a valuable guideline for every installation.

**Computers must have AutoCAD or AutoCAD LT installed to create .dwg drawings.*

**Mitsubishi Electric Air Conditioning & Refrigeration Systems**
Works acquired ISO 9001 certification under Series 9000 of the international Standard Organization (ISO), based on a review of quality warranties for the production of refrigeration and air conditioning equipment.

**ISO Authorization System**
The ISO 9000 series is a plant authorization system relating to quality warranties as stipulated by the ISO. ISO 9001 certifies quality warranties based on the "design, development, production, installation and auxiliary services" for products built at an authorized plant.

**Mitsubishi Electric Air Conditioning & Refrigeration Systems**
Works acquired environmental management system standard ISO 14001 certification.

The ISO 14000 series is a set of standards applying to environmental protection set by the International Standard Organization (ISO).

MITSUBISHI ELECTRIC
Cooling and Heating Solutions

**Mitsubishi Electric & Electronics USA, Inc.**
**www.mitsubishipro.com**

Certificate Number FM33568

Certificate Number EC97J1227

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**See complete warranty for terms, conditions, and limitations. A copy is available from Mitsubishi Electric, 3400 Lawrenceville Suwanee Road, Suwanee, GA 30024**

CMTECH-10-09-30M PD

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